

VOL. 2 No. 5

MAY

GENERAL SCIENCE

1915

THREE DAY LOAN

THE AGRICULTURAL GAZETTE OF CANADA

FARMERS' CLUBS

HOME PROJECTS AS AN ADJUNCT TO AGRICULTURAL
INSTRUCTION IN THE SCHOOL

THE PREPARATION AND MOUNTING OF PLANTS
AND SEEDS



DEPARTMENT OF AGRICULTURE
OTTAWA, CANADA

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VOL. 2, No. 5



May, 1915

DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE

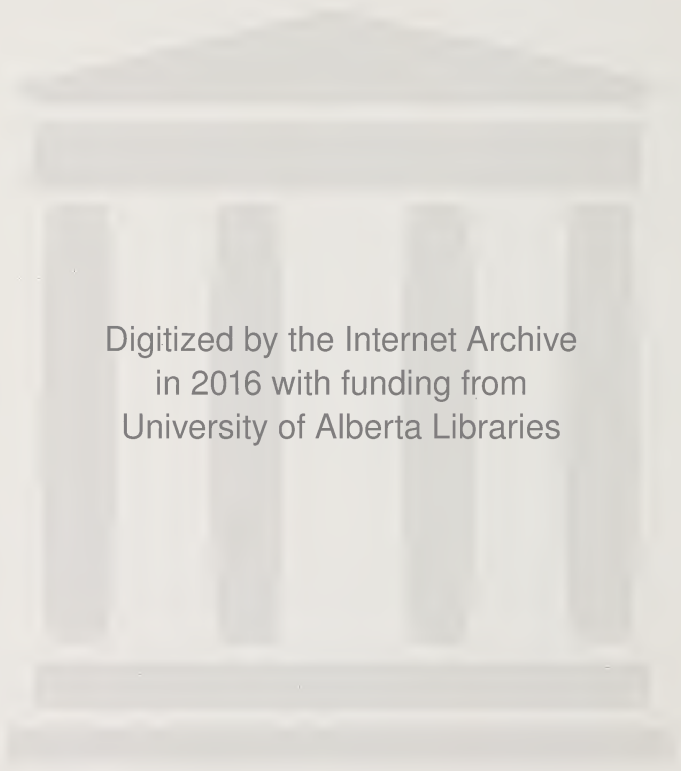
The Agricultural Gazette of Canada

EDITOR · J. B. SPENCER, B.S.A.

Issued by direction of
THE HONOURABLE MARTIN BURRELL
Minister of Agriculture

OTTAWA
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The Agricultural Gazette

OF CANADA

VOL. II

MAY, 1915

No. 5

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CANADA'S EXHIBIT

THE Canada Building is a magnificent, dignified structure; its employees are intelligent, courteous, well-chosen men.

There never was seen a more complete, inspiring exhibit of the wonders of a great country.

The Canadians have gone at the thing thoroughly, they have eclipsed completely the exhibits of every one of our individual States, and that is putting it very mildly.

In addition to Canadians, representatives of every state and every county in the United States should make it a point to spend a thoughtful day in the Canada Building.

They will learn there that it is possible for a people not afraid of "paternalism or government influence" to do wonders for the building up of a country.

And they will see splendid work done by private corporations, railroads and others, under proper and efficient control by the people.

Marvellously ingenious and striking exhibits tell the story of the great nation that lies north of us. Canada is an empire of strength, beauty, prosperity and unlimited possibilities.

Every citizen of the United States should be glad to know that we have as our brother on the north a people so powerful, a realm so vast and prosperous. Everyone who knows the difficulty of developing and governing a new country will bow reverently to the power that Canada displays.

Editorial in New York Evening Journal, April 15.



THE CANADIAN BUILDING, PANAMA-PACIFIC EXPOSITION

CANADA AT THE PANAMA EXPOSITION

BY COL. WM. HUTCHISON, CANADIAN COMMISSIONER GENERAL

THE Canadian Palace at the Panama Exposition in San Francisco, Cal., is a rectangular building 330 x 210 feet, and a welding of New-Greek and Colonial architecture. Impressive British lions guard the main entrances, and numerous huge columns all around the building contribute to give it an imposing and stately appearance. Gardens surround the majestic edifice. The materials used in the construction of the pavilion are wood, plaster and cement.

In conformity with the general construction scheme of the fair's buildings, an imitation of the Italian stone called Travertine, made of staff, has been adopted for the outside material of the Canadian pavilion. The general colour scheme of the fair buildings has also been followed. The imitation marble columns and granite foundations are so well executed that they give the visitors a perfect illusion of the real materials.

The area on which the Canadian building is built, as well as practically the whole fair grounds, is made-ground, *i.e.*, sand pumped from the ocean immediately adjoining. To secure the foundations of the building, 864 piles 45 feet deep were used. In view of any possible earthquake the frame work is made as strong as possible, bolted timbers being used on a large scale. Fully 2,000,000 feet of lumber have been used in the construction of the Canadian building.

The exhibits displayed are practically limited to specimens of the natural resources or products of the Dominion, *i.e.*, agriculture, fish and game, horticulture, forestry and mines. To lend attractiveness to

these exhibits, decorative art in harmony with the nature of the different exhibits has been successfully employed. There is a continual flow of visitors in the Canadian pavilion admiring the pictures, panels, etc., made of Canadian grains and grasses and depicting the western prairies, the Canadian orchards and landscapes, etc. The railway and waterway transportation is illustrated by miniature trains and steamers in full operation. We also see brook trout sporting in a live stream fed by a cascade of mountain water; live beavers playing in a most realistic scenery, where art and nature are so effectively blended that the illusion is perfect, and interesting tablets giving useful and interesting information about Canada.

Perhaps Canada's boldest display, taking everything into consideration, is in her fruit, for here she brings her strawberries, her pears, her peaches, her apples and all her native fruits to compete with the great products of California. Here Canada beards California in her own den, as it were, and the display of fruit she makes is an admirable one. The blush of nature has not yet left it and it looks very fresh, very inviting and very beautiful. In one corner is shown the orchards from which all this delightful fruit comes. These orchards placed among fields of blue grass are inhabited by men, women and children in miniature, busily engaged in gathering apples, pears, plums and peaches. On the ground are seen hundreds of baskets of real fruit, put there to show the world the sort that Canada grows. In another part, in jars, is a display of table fruits and jams.

The agricultural resources of the country are shown very beautifully in miniature in one corner of the main exhibit. The past and present of Canada are shown in all their glory. On one side is the rough country of a few years ago with the buffalo, moose, elk, musk-ox, antelope, wapiti and the other smaller game like wild turkey and geese, prairie chickens, snipe and quail of the early days, roaming the flying wilds. From

formation are shown in various ways. The skill of the taxidermist is in evidence in the making and in the placing of the various animals, while assisting in the production of the complete picture are transparencies that are shown by day and by night.

One side of the Canadian exhibit is devoted exclusively to showing the great harvests of grain, the raising and taking care of their abundance of foodstuffs, and the handling



AGRICULTURAL ACTIVITIES PORTRAYED

there the eye is drawn to the background, where the new country is pictured in all its beauty as it is today, great farm touching greater farm, and these covered with never ending fields of wheat, corn, oats, barley, rye and immense orchards of fruits and fruit-bearing bushes.

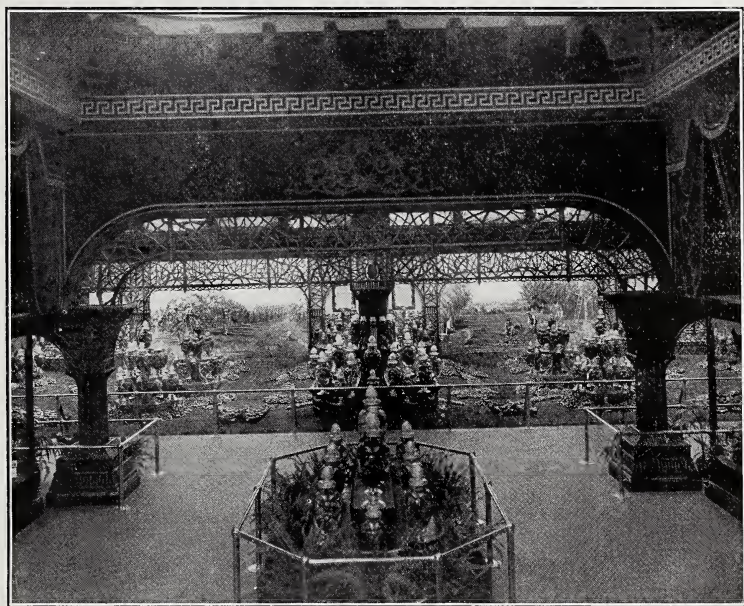
In the valleys where once roamed the wilder animals are now seen cattle grazing near beautiful homes. These wonderful scenes of trans-

formation and storing of them. After the fields and harvesting of the crops a wonderful panorama is presented in the shape of a city in which are elevators in which the grain is being deposited. Then from the elevators this grain is shown pouring into ships which haul it over the great lakes and down to the Atlantic ocean, where it is shipped to the European countries. The work of growing, harvesting and hauling this great body of grain

in all its ramifications is shown in this building in a remarkable, practical and lifelike way, giving one an idea of the vast grain-producing resources of our glorious dominion. The railway trains, the elevators, the smaller and larger ships which handle the immense crop of grain are all shown working as actively as in real life, in a way that should challenge the admiration of every visitor and that reflects the

comprising portraits of eminent men of Canada and the Empire, including the late King Edward, the present King George and H.R.H. the Governor-General, and settings of the glorious scenery with which this country abounds. All of which has made the Canadian pavilion the attractive spot of the exposition for the art seeker as well as for the farmer and prospective settler.

It can be said in conclusion that



CANADA'S FRUIT EXHIBIT

greatest credit on the skill of the artists who put this remarkable display into its lifelike, inimitable realism.

Magnificent exhibits are also made of minerals, of coal, of asbestos, of fur-yielding animals, of large and small game, of fish, of bricks and tiles, of specimens of wood, of every sort of agricultural product, of art,

there is every reason to believe, like other Canadian exhibits that have drawn thousands of settlers to Canada's agricultural lands, the Canadian exhibit at the Panama Pacific International Exposition of San Francisco, will prove a valuable investment by advertisement for the country.

PART I

Dominion Department of Agriculture

INFORMATION SUPPLIED BY OFFICIALS OF THE VARIOUS
BRANCHES REPRESENTED

FEDERAL APPROPRIATIONS FOR AGRICULTURE, 1915-16

	\$ cts.
Experimental Farms—Maintenance of Central Farm, and establishment and maintaining of additional branch stations.	785,000 00
Branch of Entomology.	20,000 00
For the administration and enforcement of the <i>Destructive Insect and Pest Act</i>	100,000 00
For the development of the dairying industries, and the improvement in transportation, sale and trade in food and other agricultural products	150,000 00
Fruit Branch.	113,000 00
Towards the encouragement of cold storage warehouses for the better preservation and handling of perishable food products.	200,000 00
Health of Animals.	540,000 00
Dominion Cattle Quarantine buildings—Repairs, renewals, etc.	15,000 00
For the administration and enforcement of the <i>Meat and Canned Foods Act</i>	275,000 00
Publications Branch.	15,000 00
International Institute of Agriculture to assist in maintenance thereof and to provide for representation thereat.	20,000 00
For the development of the Live Stock Industry.	550,000 00
To enforce the Seed Act, to test seeds for farmers and seed merchants, to encourage the production and use of superior seeds, and to encourage the production of farm and garden crops.	140,000 00
National Biological Laboratory (Revote).	25,000 00
For the administration and carrying out of the provisions of <i>The Agricultural Instruction Act</i>	25,000 00
Grant to Dominion Exhibition.	50,000 00
Exhibitions.	280,000 00
For renewing and improving Canadian exhibit at Imperial Institute, London, and assisting in the maintenance thereof.	5,000 00
	\$3,308,000 00

APPROPRIATIONS UNDER THE AGRICULTURAL INSTRUCTION ACT

AUTHORIZED BY STATUTE	\$ cts.
Ontario.	266,013 64
Quebec.	215,310 70
Nova Scotia.	68,001 87
New Brunswick.	54,308 40
Prince Edward Island.	29,138 28
British Columbia.	58,265 94
Manitoba.	64,421 31
Saskatchewan.	68,011 04
Alberta.	56,528 82
Veterinary colleges.	20,000 00
	900,000 00
SUMMARY	
Voted.	3,308,000 00
Authorized by statute.	900,000 00
Total.	4,208,000 00

THE DOMINION EXPERIMENTAL FARMS

THE DIVISION OF BOTANY

POTATO INSPECTION IN PRACTICE

BY H. T. GÜSSOW, DOMINION BOTANIST

THE potato regulations under the "Destructive Insect and Pest Act" have been given a preliminary test as to their practicability, their effect upon general shipping, and the quality of potatoes generally.

It will be remembered that the inspection of potatoes was primarily undertaken with the view of preventing the disease powdery scab from being dispersed over uninfected areas in Canada, and of controlling it as much as possible within the infected area.

Incidentally, provision was made under the Act in agreement with the United States, permitting the entry into the United States of potatoes free from powdery scab, subject to rigid inspection and to the condition that all such potatoes were grown from clean seed and on land that has never been infected with powdery scab. For this purpose, farmers who had such potatoes (or believed they had) furnished a statement that the conditions were fully complied with. Either the farmers have not yet become fully cognizant of the importance of powdery scab, or they cannot distinguish common scab from powdery scab, which is indeed most difficult. The result of this attitude was that the inspectors had frequently to condemn potatoes as unsuitable for "first grade." As far as the inspection of the potatoes themselves was concerned, it was found humanly impossible, under the existing conditions and because of the general distribution of powdery scab, to continue safely the shipments to the United States. Comparatively few carloads were shipped to the United States—only 63 in

number—when one car was found by the United States potato inspectors in Boston to contain potatoes affected with powdery scab; which resulted in the withdrawal of the necessary United States permits for the entry of potatoes into the United States for this season.

From December 12th, 1914, when the inspection work commenced in New Brunswick, up to February 24th, 1915, the following quantities of potatoes were shipped from the province of New Brunswick:—

Total number of bushels <i>Table Potatoes</i> inspected from December 12, 1914, to February 20, 1915.....	278,927
Total number of bushels <i>First Grade Potatoes</i> for U.S.A.....	49,343
Total number of bushels <i>First Grade Potatoes</i> for Canada....	4,500
	<hr/> 332,770

The result of the potato inspection this season must be regarded as quite satisfactory; the preference given to potatoes not affected with powdery scab will eventually induce the farmer to take every precaution to get rid of this disease, which he can if he only makes up his mind to do so. The appreciation of the inspected potatoes from New Brunswick clearly shows the value of inspection as an aid to establishing a good name for same. The disease-free New Brunswick potatoes were even given a preference of 10 cents per barrel over stock from the state of Maine, when sold in the United States. Farmers are again cautioned to take every precaution this spring in planting seed potatoes free from scab of any kind on land that has, preferably, not produced a crop of potatoes before.

THE DIVISION OF ANIMAL HUSBANDRY

LIVE STOCK DISTRIBUTION AND HERD IMPROVEMENT

BY E. S. ARCHIBALD, B.A., B.S.A., DOMINION ANIMAL HUSBANDMAN

EACH year many splendid pure-bred males of all classes of stock are sold from the Central Experimental Farm, either to agricultural societies or to private individuals, and to be used for breeding purposes. Many of these young sires have, in the hands of good feeders, developed into exceptionally good individuals and have been heard from both as breeders and, in some cases, in the show ring. The policy of the Central Experimental Farm in the sale of these sires is to distribute these as much as possible in districts where these animals can do the greatest amount of good; nevertheless some of the prominent breeders of live stock often make purchases from our herds and flocks. In selling these sires, animals are priced at a fair valuation so as not to undersell the pure-bred breeders in Canada; nevertheless for poor districts where pure-bred breeding stock is not appreciated and kept, animals are often sold on somewhat easier terms in order to open up the

district for improvement and eventually as markets for our breeders of pure-bred stock.

As is necessary in any herd, the herds and flocks are each year subject to severe weeding of all females which are not profitable. This naturally eliminates the breeding of a large number of undesirable males and females which would otherwise accumulate in herds and flocks of these dimensions. Aside from this weeding out of females it is necessary to discard a certain percentage of male and female progeny from profitable stock of good type. These animals are usually altered and finished for the block. Each year approximately 5 per cent of bull calves, 10 per cent of ram lambs, and 15 per cent of young boars are discarded in this way. The aim of this phase of the work on the Central Experimental Farm is to distribute only pure-bred males, and the very best of pure-breeds which we can raise.

THE FRUIT BRANCH

INSPECTION OF FRUIT BASKET FACTORIES

BY D. JOHNSON, COMMISSIONER

THERE are in Ontario at the present time some 25 factories manufacturing fruit packages. The majority of these are in the Niagara Peninsula, though there are individual factories in practically every section of the province.

Formerly there has been no general inspection made of these factories. Occasional visits have been made to them by a qualified officer of this

Branch, but these visits were not frequent, as it was generally considered that the manufacturers were turning out packages that conformed to the requirements of the Inspection and Sale Act, Part IX.

During the past two years, many complaints have been received from growers regarding the packages supplied to them. The poor quality of the veneer and the faulty nailing

were particularly complained of, and in some cases the baskets were not of legal size.

On account of these complaints it has been decided that a frequent inspection of basket factories is necessary in order to protect both the shippers and the consumers.

One such inspection has just been made, and certain features noted. The most essential requirement, so far as the manufacturers are concerned, is that any particular package made by one factory should be uniform in size to the same package made by any other factory. Unless that requirement is enforced, there is a strong temptation to make a "short" package, popular to some growers, but unfair to the consuming public and to the honest manu-

facturer. In order to effect uniformity, a standard form must be introduced which every factory will be required to use.

The use of a two-piece stapled bottom in 6 and 11 quart baskets, and the inadequate nailing of the side bands and handles are features which in many instances will have to be removed. The immense number of baskets which are broken during the shipping season can be greatly lessened by having every basket nailed in a more secure manner.

During the coming summer every basket factory in Canada will be visited once a month, and by this means it is hoped that more care will be given by manufacturers to the strength and uniformity of the packages they are making.

FRUIT INSPECTION WORK

It is gratifying to be able to state that the convictions under Part IX of the Inspection and Sale Act were only 78 for the whole Dominion during the past season as compared

with 105 in 1913-14. These were distributed as follows: Ontario, 48; Nova Scotia, 12; British Columbia, 3; imported fruit, 15.

TABLE OF PACKS FOR APPLES

IN the March number of THE AGRICULTURAL GAZETTE, on page 252, there appears a table of packs of apples. Through a misinterpretation of copy certain packs are stated to be "on end" that should have been "on side." The following is a corrected table, prepared by Mr. D. Johnson, Fruit Commissioner:

DIAGONAL 2-1 PACK

Apples to the box		Pack on side.
2-1, 4-4	36	" " "
2-1, 4-5	41	" " "
2-1, 5-5	45	" " "

STRAIGHT 3 PACK

3 wide 5 long	45	Pack on side
3 " 6 "	54	" " "

DIAGONAL 2-2 PACK

Apples to the box		Pack on end.
2-2, 3-4	56	" " "
2-2, 4-4	64	" " "
2-2, 4-5	72	" " "
2-2, 5-5	80	" " "
2-2, 5-6	88	" " "
2-2, 6-6	96	*Pack on side.
2-2, 6-7	104	" " "
2-2, 7-7	112	" " "
2-2, 7-8	120	" " "

DIAGONAL 2-3 PACK.

		Pack on end.
2-3, 4-5	113	" " "
2-3, 5-5	125	" " "
2-3, 5-6	138	" " "
2-3, 6-6	150	" " "
2-3, 6-7	163	" " "
2-3, 7-7	175	*Pack on side.
2-3, 7-8	188	" " "
2-3, 8-8	200	" " "
2-3, 8-9	213	" " "
2-3, 9-9	225	" " "

*Usually.

THE ENTOMOLOGICAL BRANCH

HOUSE-FLY CONTROL

BY C. GORDON HEWITT, D.SC., DOMINION ENTOMOLOGIST

THE necessity of undertaking house-fly control work *early* cannot be too strongly urged. The early flies are the progenitors of the millions that come later in the season. Prevention of breeding and prevention of infection are the fundamentals in house-fly control.

The chief facts in regard to the breeding habits of house-flies are now generally known. The facts regarding their ability to disseminate the causative organisms of typhoid fever, cholera, tuberculosis, dysentery and other diseases are firmly established, and the evidence that they are important factors in the spread of infantile diarrhoea which carries off so great a number of infants every summer is irrefutable.

The following notes are primarily intended to serve as a guide to those who are planning to conduct campaigns during the coming season for the further suppression of house-flies. I have also included references to certain recent investigations having a special bearing on the carriage of disease by flies. It is generally assumed that the chief manner in which the flies carry the bacterial and other disease-causing organisms is upon their legs, proboscis and other external parts of their bodies.

Investigations during the last three or four years on the bacteria-carrying power of the house-fly have demonstrated that the danger of flies carrying bacteria internally, that is, in the stomach and intestines, is much greater than that involved in the carriage of bacteria externally on their bodies and legs. It has been found that certain non-spore-forming bacteria, such as the typhoid bac-

cillus, will live a greater length of time in the digestive tract of the fly than on the legs, wings or head.

When flies feed upon infected matter such as excreta infected with typhoid bacilli, or sputum containing the tubercle bacillus, bacteria are taken into the digestive tract where they may remain in a living condition for some time. Graham-Smith found that the faeces of the fly were infected two days after it had fed on infected material. Not only are the bacteria deposited in the faeces of the fly, commonly known as "fly specks," but flies have the habit of regurgitating their food in the form of small drops of vomit. Flies which had been fed on milk gave on the average 28.3 vomit spots and 2.5 faecal spots in 24 hours. When fed on coloured food they continued to vomit such coloured food for 22 hours after feeding.

These facts concerning the length of time during which flies which have fed on infected matter may retain and disseminate such infection must be taken in conjunction with the distance which flies may travel and spread such infection. I have found in experiments with marked flies in Ottawa that under city conditions flies will travel at least half a mile from the point of liberation, and under rural conditions they will travel a mile or more if the meteorological conditions are favourable. It will be understood, therefore, that flies may carry the infection a considerable distance during the period when they are infective.

The enormous number of bacteria carried by flies and the gross nature of the infection carried by flies col-

lected in insanitary districts as compared with flies occurring in more sanitary surroundings is strikingly indicated by the work of Drs. Cox, Lewis and Glynn in Liverpool (Eng.) in 1912 and in the summer of 1913 by Dr. Armstrong in New York.

On flies collected in insanitary congested districts in Liverpool, Cox, Lewis and Glynn found the number of aerobic bacteria varied from 800,000 to 500,000,000 per fly; flies from cleaner, less congested districts carried from 21,000 to 100,000 bacteria per fly. A special examination for bacteria of intestinal origin, indicating, as a rule, faecal contamination, showed that the flies from the sanitary districts were carrying from 10,000 to 333,000,000 bacteria per fly while the flies from the more sanitary districts carried from 100 to 10,000 bacteria per fly.

In connection with a demonstration in New York in 1913 of the effect of fly suppression in the reduction of infantile diarrhoea, in which two city blocks were taken, one being "cleaned up" and rendered as flyless as possible and the other left untouched, bacterial counts of the flies were made. The average number of bacteria (agar culture) from flies in the clean houses was 13,986 per fly and from the dirty houses 1,106,017 bacteria per fly. The average number of intestinal organisms per fly from the clean houses was 4,489 as compared with 292,117 per fly from the dirty houses.

The foregoing results of accurate bacteriological examination of "wild" flies, that is, flies caught in the open and not artificially infected, are too significant to require any further explanation and are a sufficient proof of the statement that *every fly is a germ carrier. No fly is free from germs and the greater the opportunities a community provides for the infection of the flies, the greater and the more serious will be their infective condition.*

The house-fly is the sanitary index

of any community. It is the product of insanitary conditions and accordingly the question of its suppression is primarily a sanitary one. The sanitary status of a city can be judged by the abundance or scarcity of house-flies. Prevention of breeding and infection is the most important step in house-fly suppression. While the expression "Swat the Fly" and the competitions which have taken place for the killing of flies have served a good purpose in focusing public attention on the necessity of removing this evil, it cannot be emphasized too strongly that the killing of the flies themselves, except at the beginning of the fly season, is really useless and about as effective as the efforts of the old lady to sweep back the sea with her broom. In no competition, and I have obtained the results of most of them, in this and other countries, has the number of flies destroyed exceeded the number which any normal-sized heap of stable refuse is able to produce. It is not the flies themselves that we should kill, but their breeding places and sources of infection that we should wipe out.

As briefly as possible the steps which should be taken in a house-fly campaign will now be outlined:

PREVENTION OF BREEDING

Horse manure is the chief breeding place of the house-fly.

STABLES:

Construction.—Floors should be constructed of concrete or other impervious material. Earth floors or badly constructed wooden floors breed flies.

Manure.—Manure should be stored in fly-proof receptacles preferably of concrete and removed regularly at short intervals; in the summer the manure should be removed twice a week, or every day if possible.

Segregation.—Stables in cities should be segregated and confined to

specified areas with a view to limiting the possibility of nuisance and facilitating inspection.

OPEN CLOSETS:

The open closet is a breeding place and frequently a source of disease contamination, especially from "typhoid carriers".

Construction.—The open closet should be fly-proof in every particular.

Maintenance.—The wet method of excreta disposal is preferable to earth disposal as the latter is not absolutely safe; flies can emerge from material buried under several inches of earth. Our experiments have shown that they will emerge from a depth of two feet below the surface of the soil.

GARBAGE AND ORGANIC REFUSE

Winter accumulation should be removed as soon as possible to prevent spring breeding of flies. Every community should institute a "cleaning up" day or week for the purpose.

Domestic care.—Use a fly-proof garbage can. Burial or incineration of garbage should be regular and frequent where civic collection does not exist.

Civic disposal.—The abolition of "dumps" of organic refuse in or near cities is necessary. The most sanitary and safest method of civic refuse and garbage disposal is by the use of an incinerator.

OTHER FLY BREEDING NUISANCES

Brewery waste makes a good breeding place for flies, as is the case also of piggeries, poultry houses, and homes of domestic pets, such as rabbits, when not kept clean.

PREVENTION OF INFECTION

FOOD:

In shops.—Require covering of food by bakers, grocers, confec-

tioners. Boycott tradesmen not covering food.

In houses.—Protect all food which flies could infect.

SICK:

Keep flies out of the hospital and the sick room by efficient screening. Protect from flies all infectious discharges, especially tubercular sputum and typhoid discharges.

Infants.—Screen infants when on the street, and when asleep in the home.

EDUCATION:

The most important factor in the campaign. Enlist support of newspapers and the press, who are very ready to help.

The education of children (especially boys) in the schools, mothers in the home, merchants in the shop, and dairymen, is necessary.

ENLISTING HELP

The active influence of all persons and organizations interested in social reform and hygiene should be enlisted, including Women's Clubs and Associations, Civic Improvement and Social Welfare Societies, Boy Scouts, Visiting Nurses, and especially Sanitary Inspectors.

LEGISLATION

First induce a correct civic attitude which regards health as a civic asset and understands that a city of healthy people is cheaper to maintain and more productive and therefore of greater value than a city where sickness is common.

Then secure legislation to deal with the suppression of "public nuisances", the proper construction and, if possible, the segregation of stables, and cowsheds, the protection of food in stores, the upkeep of dairies and the maintenance of closets.

THE RURAL PROBLEM

The fact that our milk supplies come chiefly from the country, where the fly problem is of course most serious and the sanitary conditions least sanitary, renders this a very serious matter. The conditions are chiefly due to ignorance and carelessness.

The disposal of the manure presents a different problem in the country, as the farmer cannot always remove it at frequent intervals, and the alternative method of treating the manure with an insecticidal substance introduces the question as to the effect of the insecticide upon the fertilising properties of the manure. If the farmer can cart the manure away from the barns and spread it immediately on the land the problem is very greatly minimized. The investigations of Dr. Shutt, the Dominion Chemist and others have shown that the storing of manure reduces its manurial value.

The most effective insecticidal substance found in a lengthy series of experiments by the United States Department of Agriculture is borax in the commercial form and used either dry or in solution. It is used

in the proportion of three-fifths of a pound to every eight bushels or ten cubic feet of manure immediately on its removal from the barn. The best method of applying the borax is to dust the dry chemical over the manure, particularly around the outer edges of the pile, by means of a flour-sifter or sieve, and afterwards sprinkle two or three gallons of water over the borax-treated manure.

In the stables chloride of lime has been found effective and the use of any of several commercial disinfectants will assist in the reduction of flies.

Other necessary measures are the screening of all open privies and care in their maintenance; the screening of dairies and cowsheds and general cleanliness in stables and dairies.

Enforcement through licenses. These requirements could be largely enforced by the licensing authorities and should be so controlled through licenses.

In the *country house and cottage* the general principles which have been outlined should be applied, especially in the maintenance of the outdoor closet and the care of garbage.

THE DAIRY AND COLD STORAGE BRANCH

SOME NOTES FROM THE FINCH DAIRY STATION IN 1914

BY GEO. H. BARR, CHIEF DAIRY DIVISION

THE Finch Dairy Station was operated during the entire year. Cheese was made from May 15th to November 7th. During this period there were several shipments of milk and cream made to Montreal and Ottawa as well as occasional churnings of butter for the patrons and local trade. During the balance of the year the output consisted of butter, milk and cream

shipped to Montreal and Ottawa.

	Lb.
Total Milk received.....	2,356,202
" Cheese manufactured ..	131,906
" Butter manufactured ...	21,247
" Milk shipped.....	60,800
" Fat in cream sold.....	14,407.14
Amount paid to patrons.....	\$28,108.74

Average prices paid the patrons per 100 lb. of milk each month:

January.....\$1.72	July.....\$1.07
February.....1.67	August.....1.15
March.....1.19	September...1.34
April.....0.98	October.....1.44
May.....1.04	November...1.44
June.....1.04	December ..1.61

Average for all milk received during the year, \$1.193.

The average per cent fat in the milk delivered from March 1st to October 31st was 3.45. In 1913 the average for the same period was 3.36 per cent; this slight increase in fat in the milk delivered to the factory during the above period in

1914 at 30 cents per lb. of fat amounts to \$541.50. As all the milk is now paid for on the fat basis the patrons are beginning to take a keen interest in increasing the per cent of fat in the milk.

The following table shows the difference between the average production of milk and money received per cow in the best and poorest herds sending milk to the station for different periods. The months given cover the entire period the patrons sent milk to the factory.

Highest and Lowest Average, per Cow, 37 Herds, 469 Cows	Months Sending Milk	Lb. Milk	Money Received	No. of Patrons
Highest Average per Cow.....	12	6285	\$74.83	7
Lowest " " "	12	3219	38.85	7
Highest " " "	11	4809	56.40	3
Lowest " " "	11	2609	31.21	3
Highest " " "	10	3972	45.12	3
Lowest " " "	10	2729	30.97	3
Highest " " "	9	3959	45.60	6
Lowest " " "	9	2977	32.84	6
Highest " " "	8	3940	44.02	12
Lowest " " "	8	2220	26.21	12
Highest " " "	7	3022	35.62	6
Lowest " " "	7	2006	23.96	6

The average pounds of milk sent to the factory per cow from 469 cows was 3,581. The average money received per cow was \$41.81. If all the herds had averaged as much per cow as the best herd did, 6,285 lb. of milk (24 cows in herd) there would have been 1,268,176 lb. more milk delivered at the factory in 1914, which at the average price paid the patrons per 100 lb. of milk (\$1.193) would have given the patrons \$15,129.33 more money or an increase of \$32.25 per cow.

Three years ago there was not a cow being tested in the Finch district; in 1914 there were about 200 tested.

The following statement of shrinkage in the milk supply bears on the question of the advisability of providing some suitable feed for the cows to supplement the pastures during the dry spells which come almost every summer. Only 22 herds contained the same number of cows in June, July and August. The

total number of cows in these herds was 285, and the shrinkage is calculated on this number.

These cows gave 206,127 pounds of milk in June, 169,575 pounds in July and 126,096 pounds in August, or a shrinkage of 17.7 per cent for July and a further shrinkage of 25.6 per cent for August.

Careful experiments show that cows properly fed during the summer months will shrink about 10 per cent per month after June. Ten per cent shrinkage on the June milk from these 22 herds would equal 20,612 lb., and on the July milk 16,957 lb., or a total of 37,569 lb. The difference between 80,031 lb., the actual shrinkage, and 37,569 lb., or what may be termed the unavoidable shrinkage of 10 per cent is 42,462 lb., which additional quantity these patrons might have had if they had provided suitable soiling crops for their cows during July and August. The value of this quantity at the price paid the

patrons per 100 lb. of milk for July and August (\$1.11 would have been \$470.26. This, of course, is the loss for only two months. If the cows are allowed to fall off in July and August, the yield is affected to the end of the milking period, and the loss thereby is difficult to estimate.

The greatest shrinkage in any one

herd in July was 29 per cent. The greatest shrinkage in August was 38.1 per cent less milk than in July; the smallest shrinkage in August was 16 per cent. The average shrinkage per cow in July was 128.3 lb., in August 152.4 lb. A 10 per cent shrinkage per cow would have been only 72.2 lb. in July and 59.4 lb. in August.

FRUIT REFRIGERATION INVESTIGATIONS AT GRIMSBY, ONTARIO

BY EDWIN SMITH, B.Sc., IN CHARGE COLD STORAGE EXPERIMENTAL PLANT, GRIMSBY, ONT.

IT has for a long time been believed that refrigeration facilities located in country points for the use of fruit-growers and shippers in the pre-cooling, assem-



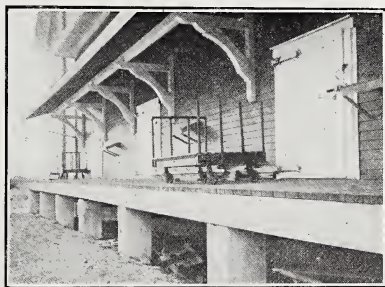
EXPERIMENTAL COLD STORAGE
WAREHOUSE, GRIMSBY, ONT.

bling or cold storing of tender fruits, offered great possibilities for the improvement of the fruit trade. Many of these possibilities were demonstrated and their value realized in practical use last season in connection with the experimental pre-cooling and fruit storage warehouse at Grimsby, Ontario.

The total failure of the peach crop in this part of Ontario greatly cut down the fresh fruit shipments, but even with cherries, plums, tomatoes and pears the plant operated at about one quarter full capacity. Thirty-nine cars of pre-cooled fruit were

handled, many of which were assembled over three or four days. Many growers held medium or small lots of tender fruits for a few days for better markets. Blockades in transportation and marketing that often cause heavy losses in tender fruits were met by holding fruit a few days in cold storage. During the winter the warehouse was used for the cold storage of apples, pears and cabbage.

The project is having its greatest effect at present in a demonstrative way. In many instances from \$50 to \$200 per car was gained by taking advantage of this plant. In the



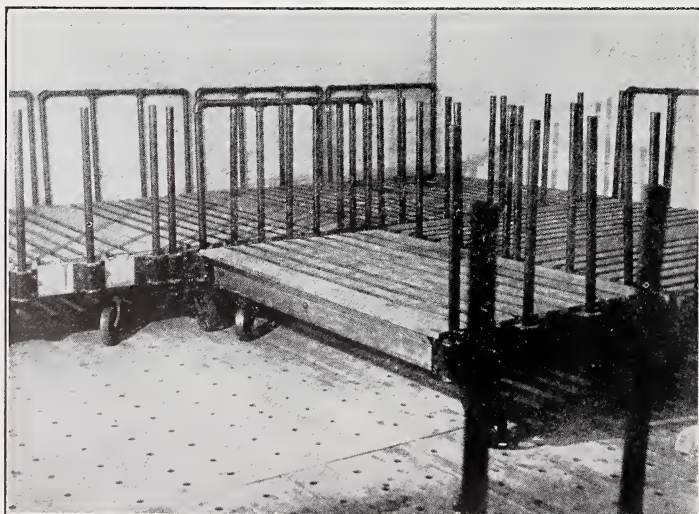
LOADING PLATFORM AT COLD STORAGE
WAREHOUSE, GRIMSBY, ONT.

case of the raspberry crop, which is not important in this district, \$3000 was saved the vicinity in a single week.

During the winter and spring the



GRIMSBY COLD STORAGE—INTERIOR VIEW OF GENERAL STORAGE ROOM



INTERIOR VIEW OF GRIMSBY COLD STORAGE—SHOWING TRUCKS AND PERFORATED FALSE FLOOR FOR PRE-COOLING

Grimsby equipment has been put into shape to operate at full capacity during the coming season, in view of the present prospects for a heavy fruit crop.

The services of Mr. J. M. Creelman of Guelph, have been secured as scientific assistant. Mr. Creelman has had a wide experience in handling fruit in Ontario, British Columbia and California.

The work during 1915 will be carried on in three divisions: (1) Commercial Service; (2) Experiments and Demonstrations in Shipping; (3) Scientific Records on Fruits under different Cold Storage Conditions. The first division will cover the pre-cooling and shipping of fruit for shippers and growers in a strict commercial manner, charging fixed rates for the service. The second will take up the handling of fruit as well as its refrigeration; experimental shipments in carload lots will be carried out, using packages and methods that are not now in vogue in the Niagara district, but which are satisfactory in other fruit districts and markets; a study of the costs and returns from these methods and packages; the effect of careful

handling upon long distance shipments; methods of loading and icing refrigerator cars; the rate of pre-cooling and its effect on fruit, etc.

Under the third division comes the experiments with small lots of the leading varieties of fruits under different cold storage conditions, carrying on the work started last year which covered the following:—

KIND OF FRUIT:	VARIETY:
Strawberry	Williams
Cherries	Governor Wood
	Early Richmond
	Montmorency
Gooseberries	Columbus (European)
	Downing (American)
Black Currant	Prince of Wales
Red Currant	Red Dutch
Blackberry	Lawton
Blueberry	Canada
Raspberry	Cuthbert
Plums	Bradshaw
	Washington Gage
	Yellow Egg
	Reine Claude
	Grand Duke
Tomatoes	Earliana
	Chalk's Jewel
	Danish Export
Grapes	Niagara
	Concord
	Agawam
	Lindley
	Wilder
	Catawba
	Vergenne

THE HEALTH OF ANIMALS BRANCH

HOG CHOLERA SERUM

BY Order-in-Council a change has been made in the regulations regarding hog cholera as follows:

Regulation 88½. The importation, manufacture, sale or use of hog cholera serum or virus, except by an Inspector acting under the special authority of the Veterinary Director General, is prohibited.

Hitherto the importation and use of Hog Cholera Serum has been prohibited, and this change has been made at the request of the Veterinary Director General, in view of the possibility

of affecting a saving of hogs which have been exposed to infection but are not visibly diseased. It is intended in all cases where the conditions appear suitable to use the serum for the purpose of saving those hogs which have been exposed to infection in the hope of lessening the expenditure for hog cholera. At first, however, the Veterinary Director General intends to try it on only a limited scale and extend its use later, if experience shows it to be of real value.

THE ANIMAL CONTAGIOUS DISEASES ACT

BY Order-in-Council the regulations under "The Animal Contagious Diseases Act." approved under date the 30th November, 1909, and amendments thereto, are further amended by adding the following section:—

"Section 88¾. The feeding of swine upon garbage or swill, either raw or

cooked, obtained elsewhere than on the premises where fed, is prohibited, unless special permission in writing is first obtained from the Veterinary Director-General."

This amendment shall not come into force until three months after publication thereof in the Canada Gazette.

ONE-DAY-OLD CHICKS

By Order-in-Council the Order under "The Animal Contagious Diseases Act", of date the 9th day of November, 1914, as amended by Orders of date the 11th, 13th, 19th, 23rd, 24th, 30th of November, 10th, 15th, 21st of December, 1914, 4th, 11th, 27th of

January and 4th of March, 1915, is hereby further amended as follows:—

"One-day-old chicks may be admitted from any part of the United States, provided no hay, straw, chaff, or similar fodder, is brought in with them."

THE LIVE STOCK BRANCH

FEDERAL AID TO FAIR ASSOCIATIONS

MANY factors have influenced or retarded to a greater or less degree the progress of stock-raising in this country. It may safely be asserted, however, that few have given greater encouragement or been productive of more far-reaching efforts than the influence exerted, both directly and indirectly, by fairs and exhibitions. Show-yard competition and the desire to produce and exhibit winners have called forth the best efforts of breeders. The success achieved by leading stockmen has often been the means of starting others to attempt better things. Individual results taken singly may seem small; taken collectively, they assume great proportions, and, it is to be remarked, that the work of a few men has exerted a wide influence upon the progressive development of stock breeding as an

industry. The show-yard is the battle ground where each exhibitor may learn, through success or failure, the results of his work. Without the stimulus thus created the great levelling-up process would not be possible, nor would the business of stock-raising have developed as it has done.

Indirectly fairs and shows have wielded a powerful influence in informing the farmer and in teaching him the necessity of raising and maintaining better animals, as well as giving him correct ideas regarding the suitability of breeds and the correct type in each case. This influence is appreciated fully by those only who have been closely connected with the industry and who have studied its growth carefully. It may be of interest to note that in the case of a certain show in Canada,

started within the last decade under the supervision of the Live Stock Branch, it was necessary in the beginning to send typical animals properly fitted for demonstration purposes to illustrate the type, quality and finish required in first-class animals. A few years later there were animals entered that would come into the short leet in their respective classes in any Canadian show. The institution of this particular show has done much to bring about a new era in that district.

The live stock industry has from the beginning been of paramount importance in the agriculture of this country, and the record of the annual fairs may be considered as representing the history of its progress. While, however, fair associations have done much to promote and encourage live stock production, it must be admitted that their work has often been seriously hampered through lack of sufficient funds. In order to induce the presence of exhibitors, locally and from a distance, the prizes offered must be such as to appeal to the breeders who are under heavy expense in fitting and showing their stock. The conditions that obtain at the present time make it even harder than heretofore for fair associations to obtain the requisite funds to enable them to meet the steadily increasing expense incidental to growth and to sufficiently increase the prizes offered.

Realizing that the time is oppor-

tune and that the judicious expenditure of comparatively small amounts of money would prove particularly beneficial to the live stock industry, the Dominion Department of Agriculture, through the Live Stock Branch, has decided to offer financial aid to shows reaching a certain standard, the object being to enable them to improve and increase their prize list with the view of encouraging production.

The conditions governing federal aid to fair associations may be briefly stated as follows:—

Fair Associations whose shows are open in all classes to the whole of Canada, and which have paid out in the utility classes of live stock and poultry at their last preceding show, the sum of five thousand dollars, or over, will be given a grant equal to 50 per cent of the actual amount paid out, the maximum grant to any show not to exceed the sum of five thousand dollars.

Fair Boards, when making application to the Live Stock Branch for this grant, must forward a certified and properly subscribed statement of the auditor's report of all prize money paid out at the last show in the classes previously referred to; as also a copy of the proposed prize list for the succeeding year. For the purposes of this grant, the prize list must be approved by the Live Stock Commissioner.

All pure-bred live stock exhibited at shows which receive the benefit of this grant must be registered, in the name of the exhibitor, in the Canadian National Live Stock Records.

In all questions of policy, or matters of dispute, the decision of the Live Stock Commissioner shall be final.

Canada, according to past records, gets into the doldrums, through one cause or another, every twentieth year, and then gets away to a fresh run of prosperity again. That run, on this particular occasion, is now started, and is in a "back to the land" direction. Everybody is talking farming, city lots are now almost unsaleable, building is at a standstill in the larger towns, and a sharp lookout is being kept on good farms for sale, and many transactions in this direction are taking place. Many speculators are trying to unload city property in part payment of farm land transactions. During the spring and summer many men who less than a year ago turned up their noses at the offer of a job on the farm will be glad to take just such a job now.

Border Chief, in

The Scottish Farmer, Glasgow, March 27th, 1915.

THE SEED BRANCH

WORK OF THE PAST YEAR

BY GEO. H. CLARK, B.S.A., COMMISSIONER

THE work of the seed branch falls naturally into three main divisions: seed growing, seed testing and seed inspection. The production and use of better seed is encouraged through subventions to the provinces for field crop competitions, seed fairs and provincial seed exhibitions and to growers of certain field root and vegetable seeds on their product held for seeding in Canada. Seeds are tested for purity and germination, and grass and clover seeds are graded for farmers and seed merchants at the Ottawa and Calgary laboratories. A system of inspection is employed to regulate the trade under the Seed Control Act. Investigations are made, educational material is distributed and information is supplied through correspondence, press notices and publications.

SEED GROWING

During the year 1913-14 there were conducted throughout Canada 313 field crop competitions, 181 seed fairs and 10 provincial seed exhibitions. The sum of \$27,971.18 was paid out to the provinces as subventions on this account, which is practically one-half of their total cost. Beginning January 1st, 1914, the amount made available to the provinces was increased by about 33 per cent. A field crop competition may now include five kinds of crops instead of three and a provincial seed exhibition may receive \$600 instead of \$400. The extra \$200 is intended to encourage the production of registered seed. These subventions are paid on the basis of

not more than two-thirds of the moneys awarded to competitors as cash prizes.

Twelve growers of field root and vegetable seeds received subventions on their 1913 crop. The greatest variety of seed was grown by the Ontario Seed Company. The Dominion Sugar Company, Berlin, Ont., are large growers of sugar beet seed, but received subvention on only 5,035 pounds as the balance, some 38,000 pounds, was exported. Farmers in Yarmouth County, N.S., grew most of the Swede seed. A small quantity, and also some mangel seed, was grown at Lion's Head, Bruce County, Ont. Subventions amounting to about one-eighth of the retail price were paid on 10,700 pounds of seed as follows: Swede 906, mangel 2,326, sugar beet 5,035, beet 54, carrots 47, radish 465, tomatoes 1,119, cabbage 12, onions 357, lettuce 243, cucumber 66 and musk melon, 70.

SEED TESTING

The samples tested at the Ottawa laboratory for the past year include: ordinary samples, 11,373; cereal investigation, 2,065; corn investigation, 1,694; individual ear tests for corn inspection, 4,400; soil investigation, 573; special investigations, 408; official tests, 956. At the Calgary laboratory 3,733 ordinary samples were tested and special investigations were conducted. The cereal testing work was smaller at Calgary than for several years due to the excellent condition in which the grain was harvested in 1913, but the grading of grass and clover seed increased over 50 per cent. The

work of the Ottawa laboratory shows a steady increase from year to year. Most of the trade samples are received from January to April, inclusive. The number of these samples received daily during these four months averaged 66. The special investigations receive attention during the other months.

SEED INSPECTION

The system of inspection in connection with the administration of the Seed Control Act is gradually being extended. The district officers of the Branch are responsible for the inspection work in their respective districts. During the trade season, a period of about three months, they were assisted by twenty-two temporary seed inspectors. In the spring of 1914, 5,173 dealers and farmers were visited, many of them several times. Weekly reports were forwarded to the chief seed inspector of the persons visited, the kind and quality of seed for sale and the source of supply. Information was given and official complaints were made of supposed infringements of the Act, accompanied by official samples of seed improperly exposed for sale. In all, 956 official samples were received and 708 were found to be violations. Most of these were first offences or of a very minor nature. There were 31 prosecutions, all resulting in convictions.

INVESTIGATIONS

The inquiry into the quality of seed grain, flax and corn used in Canada, begun in the spring of 1913, has been completed and has been published with suggestions for improvement.

The accumulation and disposition of screenings at the terminal elevators, the various uses to which they are put, their composition, feeding value and the danger of weed dissemination in feeding them to

stock, have been given further attention during the past year.

An investigation into the weed seed content of farm lands was begun in 1914 with the object of discovering the relation of their prevalence to different cultural practices.

Information has been received at the Calgary office on timothy seed production in the prairie provinces, and suggestions are given which should develop this industry in regions not well adapted to cereal grains.

EDUCATIONAL MATERIAL

In 1914 some 500 economic and weed seed collections were prepared and distributed to promote agriculture in schools recommended by the provincial departments of education. A number were sold to seed merchants and agricultural organizations at \$2 each.

Sets of 34 hand-sieves were distributed to agricultural representatives or demonstrators in Ontario and Quebec.

Material was prepared for some of the leading exhibitions, and assistance was given to the provinces in conducting seed judging classes at short courses, seed fairs and on demonstration trains.

INFORMATION

Special information is given by correspondence, and articles of general interest relating to seed supply and crop production are contributed to the press and departmental publications.

Branch publications now in press or recently published are:—

Bulletin S-8, Weeds and Weed Seeds.

Bulletin S-9, An Inquiry into Seed Grain, Corn and Flax.

Annual Report for 1913-14.

PART II

Provincial Departments of Agriculture

INFORMATION SUPPLIED BY OR THROUGH OFFICIALS OF PROVINCIAL
DEPARTMENTS OF AGRICULTURE, INCLUDING
AGRICULTURAL COLLEGES

FARMERS' CLUBS

PRINCE EDWARD ISLAND

BY THEODORE ROSS, SECRETARY FOR AGRICULTURE

THE farmers' institutes in this province correspond to some extent to the farmers' clubs of Ontario, with the exception that the farmers' institutes receive a government grant and Ontario farmers' clubs do not, and, that we have no societies corresponding to the farmers' institutes of Ontario.

The farmers' institutes of Prince Edward Island are supposed to embrace at least four school districts, and some of them cover five or six or even more. In a Catholic settlement the bounds of the institutes are generally co-terminus with the bounds of the parish.

Nearly all the institutes do some co-operative buying and selling. We have what we call clubs in the institute, but they do not correspond to Ontario clubs; for instance, the Cornwall institute is composed of four school districts and in it they have three clubs.

The Department of Agriculture gives a grant of \$30 for the purchase of pure bred stock. Cornwall institute has been using this altogether to add to the purchase of bulls. The grant of \$100 is given by the institute to one club one year, and to

another another year, so that there is in this institute three bulls, one owned by each of these clubs.

It is seldom that these clubs hold meetings other than business meetings connected with the management and sale or purchase of the stock. I think that there are quite a number of these clubs in the different institutes, but the clubs as clubs get no grants from the department and make no report to it. We recognize them merely as members of the institute.

Last spring I happened to be at St. Chrysostome in Prince county and was surprised to learn that they had a club there. This was entirely different from the others. They had a meeting every week in the school to discuss educational work. That night they were taking up the feeding of cattle, and one man in the district had undertaken to feed some cows according to the best information that could be had and was to report on it. There were three clubs in this institute running on this line, and it is possible there may be others of the same kind in the province, but, if there are, we do not have information of them.

ONTARIO

BY G. A. PUTNAM, SUPERINTENDENT OF FARMERS' AND WOMEN'S INSTITUTES

THE history of agricultural development in Ontario contains evidence of the many beneficial results both to the individual and to the community following the organization of local societies (Farmers' Clubs) for the purpose of studying, discussing and debating agricultural problems, improving the members in a literary way, and affording a healthful social life. Long before Farmers' Institutes were thought of in Ontario, we found here and there throughout the province local organizations of farmers formed with a view to affording the members an opportunity of interchanging experiences in the practice of agriculture, discussing available literature in the form of agricultural journals and books on agriculture, holding debates, usually as to the comparative value of different methods in agricultural practice, giving addresses upon set topics, etc. In the early days of the Institute, twenty-five to thirty years ago, many of the practical farmers called upon to accompany the Agricultural College staff in the Institute campaigns were men who had gained their first experience in public speaking and debating at the local Farmers' club. Guelph with its Fat Stock club, East York with its Farmers' club, were centres for the best farming in the province in the days when an agricultural college for the province was first being talked of. The success of the farmers in these districts and many others was in no small measure due to the advantages enjoyed through local clubs.

In the Institute campaign of 1907-08 the lecturers were instructed to give encouragement to the formation of Farmers' clubs. The district representatives were also asked to use their influence and give assistance in the establishment and conduct of these clubs. As a result of these

special efforts we found clubs established in many sections of the province and several counties had from six to twelve organizations, while Waterloo county reported thirteen clubs with a central organization (County Board of Agriculture) made up of representatives from individual clubs. While the result was quite gratifying so far as the number of clubs organized was concerned, the proportion of organizations which continued to hold monthly or semi-monthly meetings from year to year was rather discouraging. Notwithstanding the fact that many clubs have disbanded, the total number is gradually increasing, and the farmers are coming to appreciate as never before the benefits to be derived and the advantages enjoyed through the local organization.

While the Department of Agriculture published a booklet giving suggestions as to organization, constitution, by-laws, topics for discussion, etc., and offered to send an organizer and provide a speaker free of charge at one meeting a year to those organizations which held at least four meetings on their own account, the clubs for the most part carried out their work independently and were not given a status in connection with the Institutes or other agricultural body. It was a case of giving suggestions to the farmers as to how they might help themselves, but no assistance was given by way of money grants, and very little in other ways.

OBJECT OF THE CLUBS

The object of Farmers' clubs as set forth in the constitution is as follows:—

“To encourage and maintain a deeper and more general and intelligent interest in all that pertains to agriculture in the broadest sense, by holding meetings at which farmers may receive and give in-

formation, suggestions and experiences, and study together how best to improve themselves and to help their fellow farmers; also to afford an opportunity for debate and study to its members, that they may thus become accustomed to public speaking and help to develop talent along those lines that might otherwise remain dormant; to have them present addresses upon subjects relating to farming and dealing specially with the conditions existing in the locality; to increase the knowledge of and interest in the largest questions (not sectarian or political) of the nation and which affect the social life and financial position of the farmer; to create and stimulate an ambition in our farmers and especially the younger men to be successful in the truest sense and to not only raise the calling of the farmers to the place it should occupy in keeping with its importance to the state, but also to make use of his successes, opportunities and power, to make Ontario a still more desirable province to live in; to hold meetings once a month and possibly one every two weeks during the winter season.

"When a representative of the Department is in attendance discussions or addresses of a racial sectarian or political nature must be avoided, and we would advise the officers of local clubs not to introduce questions of this nature at their regular meetings. There are plenty of questions bearing directly upon their calling which can be discussed without entering the political or sectarian field.

"To carry on experiments among the members and to report upon these at the meetings.

"Co-operation in production, selling, marketing and buying if it is decided to make purchases through the club, we would advise that the local merchants be asked to give quotations, and unless the goods desired can be purchased at a considerably lower rate elsewhere we would advise that they be secured locally. You cannot get along without the business men of the town and village, and provided you can get the quality and class of goods desired, it is well to give them the preference."

The clubs are encouraged to interchange papers among adjoining organizations and also to arrange for members of one club to give the programme at adjoining clubs.

DOINGS OF CLUBS REVIEWED

A review of some of the things being done by the 300 clubs of Ontario will be of interest. The work of the club is varied as it must be to embrace the aims for which it stands.

At the meetings topics directly bearing on the financial improvement of the members through improved methods of soil cultivation, drainage, seed selection, harvesting, etc., are exhaustively discussed. The selection and breeding of horses, cattle, sheep, swine and poultry are all considered, and the plans of buildings for their health and comforts in the economy of production, become items of interest.

The spirit of co-operation follows as a natural consequence, the union of a number of men as members of an association for the mutual benefit of each and all. While this spirit is very small at present it has grown considerably within the last few years. The co-operative buying of supplies is a big feature of this spirit. Seed grain, live stock, feeding stuffs, sugar, salt, binder twine, wire fencing, etc., are all included in these transactions. By buying in bulk, a dealer is able to quote lower prices, which makes it more profitable for both the buyer and seller.

The co-operative sales through the clubs have been of small importance. Practically no bulk sales have been made. Seed grain and live stock have been offered through the clubs, but these are largely individual or small lots. There is a great field for development here on the part of the clubs. If the members of the different clubs can decide that one variety of grain or potatoes, or one breed of dairy cattle, beef cattle, sheep, swine or horses is as profitable as a mixture, then a club or group of clubs will become noted for the quantity and quality of production in that particular line, and the wholesale dealer can feel safe in ordering from that club direct.

In a number of localities removed from a meat shop beef rings have been successfully operated by the members, thus providing a supply of fresh meat during the warm weather.

The strength of the co-operative

movement on the part of a club secured for the farmers in Northern Ontario the favourable consideration by the railway officials of an application for a station.

The financial side of rural life does not receive the entire attention of the clubs. The improvement of the social life and standing of the community receives its just amount of consideration. Facilities for home and community amusements are considered a requisite to successful agriculture in providing recreation for the young people. Concerts and banquets have been held, libraries, reading rooms and, in some districts, skating rinks have been provided.

The club organization is far reaching in its work but is only in its infancy. The value of the local organization is most forcefully illustrated in the history of the Women's Institute of the province of Ontario. This organization, with its 850 branches and a membership of

over 25,000, now reaches practically every section of the province. The success attending the efforts of the Women's Institute is largely due to the fact that the women of the localities concerned have been required to form *local organizations* and to do a considerable amount of work through local efforts, and by the use of local talent, before they are given assistance financially and by way of furnishing instructors and lecturers from time to time. The most effective way to instruct is to point out to the people where and how they may get information upon the subjects of vital interest to them and require that they make some effort on their own account before assistance is given. There is evidence that the farmers are beginning to take to heart the demonstration so effectively made through the Women's Institute, that we must have a local organization if the greatest good is to be done to the greatest number.

SASKATCHEWAN

BY W. W. THOMSON, B.S.A., DIRECTOR, CO-OPERATIVE ORGANIZATION

IN Saskatchewan the farmers' club, as it exists in Ontario and in the Maritime provinces, is unknown. In 1911 an attempt was made by the Extension department of the Saskatchewan University to arouse interest in the farmers' club movement. A bulletin, setting forth the advantages to be derived through these institutions and outlining a simple form of organization, was prepared and circulated, but owing to the fact that there was already another type of farmers' organization in the field, performing many of the educational and social functions which the clubs were intended to fulfil, little interest was manifested by the agricultural community and no clubs were organized.

The organizations already in the field were the local branches of the

Saskatchewan Grain Growers' association, and as these are in many respects carrying on work identical to that undertaken by the farmers' clubs in the East, a short account of the origin and development of these organizations is given herewith.

The Saskatchewan Grain Growers' association came into existence in 1901 as a result of the unfavourable conditions under which the farmers of the West were then compelled to market their grain. The Hon. W. R. Motherwell, now Minister of Agriculture for Saskatchewan, and Peter Dayman of Abernethy, called a number of farmers from Abernethy, Wolseley, Sintaluta, Qu'Appelle and other points to meet at Indian Head to discuss the situation and formulate plans for the establishment of a farmers' organization which would

press for the betterment of marketing conditions and work to secure just legislation on all matters affecting the agricultural community. At that meeting, held in December, 1901, it was decided that local organizations should be established throughout the country and that these should send delegates to a convention where a central executive, representing the whole, should be elected.

A campaign to organize local associations throughout the country was undertaken at once with the result that 38 associations were in existence when the first Grain Growers' convention was held at Indian Head in February, 1902. At this convention the organization was put on a permanent basis and from that time to the present the association has been a power in the land. An account of its achievements in securing improved grain marketing facilities and in originating progressive legislation on matters affecting agriculture, while out of place in this article, would show that the West owes much to the Saskatchewan Grain Growers' association. Suffice it to say that the objects of its founders have been largely realized and so popular has the organization become that there are few rural communities in Saskatchewan where a local branch of the association has not been established. The last annual report of the association shows that there are upwards of 800 local branches in the province with a total membership of 21,019 persons.

It is these local grain growers' associations that in Saskatchewan take the place of the farmers' clubs of the East. Usually a local will serve a territory identical to the local school district and the meetings of the association will be held in the school house, but occasionally three or four school districts will be united in one grain growers' association. The membership in the locals ranges from the five members, required to organize, up to two hundred or more. Each local has a president,

vice-president, a secretary and a board of directors, who together constitute an executive. Meetings are held once or twice each month at which matters of local and provincial interest are discussed and each organization engages in such other activities as appeal to its members. Of late years women have been admitted as members and many new lines of educational and social work have been taken up.

In regard to the relation of these organizations to the agricultural societies and the provincial department of agriculture, it might be explained that in districts where no agricultural society has been organized the college and the department will work through the local grain growers' association in carrying on extension work if its officers so desire. Institute speakers will be supplied to discuss agricultural topics at meetings arranged by the local, or, if the local takes up such lines of agricultural society work as standing field crop competitions or seed grain fairs, judges will be supplied free and federal grants can be earned on the same basis as if the competition or fair had been held under the auspices of an agricultural society. A maximum grant of \$200 may be earned for a standing field crop competition or \$50 for a seed grain fair.

Many activities of a social nature are also carried on by the local grain growers' associations. In the winter, concerts, entertainments and other gatherings of a social nature are arranged at frequent intervals, and practically every local holds a picnic during the summer. These gatherings afford a much needed opportunity for the people to mix together and become acquainted and add greatly to the interest of farm life throughout the year. Ministering, as they do, to the material, moral, intellectual and social welfare of the community, the local grain growers' associations fulfil very important functions and occupy a high position in the esteem of the western farmer.

PRINCE EDWARD ISLAND

SEED FAIRS

FIVE seed fairs were held in Prince Edward Island this spring. The Southern Seed Fair at Murray River, February 24th; the Eastern King's Seed Fair at Souris, February 26th; the Provincial Seed Fair at Summerside, March 3rd to 5th; the King's County Seed Fair at Georgetown, March 9th; the Central Seed Fair at Charlottetown, March 10th to 12th. They were all well patronized. The number of exhibits was larger than usual and the quality far surpassed previous years.

Agricultural Conferences were held in connection with the Seed Fairs and were very largely attended, from 300 to 800 being present at each meeting. The only new feature in connection with the fairs was the auction sale of seed grain held at Summerside. All the prize winning wheat, oats, barley, potatoes, and timothy seed was sold by public auction. Three hundred bushels of grain were disposed of in this way. The highest price paid for wheat was \$2.25 a bushel, and \$1.25 per bushel for oats.

HORSE BREEDERS' ASSOCIATION

The annual meeting of the Horse Breeders' Association of Prince Edward Island was held in Charlottetown, on Thursday, March 18th.

The financial statement of the previous year showed a balance on hand of \$230.00.

The officers for the ensuing year are as follows:—

President, W. W. Crosby, Cornwall; vice-president for King's County, H. H. Acorn, Souris; vice-president for Prince County, Jabez Lea, Victoria.

Directors, David Reid, Victoria Cross, J. Stanley Wedlock Charlottetown, Robert Baker, North Bedeque.

HORSE SHOW

The Prince Edward Island Horse Show was held in Charlottetown on Wednesday, March 17th.

The total number of entries was 110 as compared with 53 in the previous year, and the amount paid

out in prizes was \$488 as compared with \$197 in the year 1914.

The attendance of spectators was very large and the awards were placed by Professor W. J. Reid, assisted by Professor W. R. Reek.

The Right Honourable Lewis Harcourt, Secretary of State for the Colonies, in acknowledging a copy of *The Agricultural War Book* sent him by Honourable Mr. Burrell writes:

"I am extremely obliged to you for the copy you have sent me of the most interesting *Agricultural War Book*. It is admirable in every way and ought to produce a very considerable effect throughout Canada."

NOVA SCOTIA

AGRICULTURAL LEGISLATION

TO facilitate and encourage the extension of the co-operative movement in Nova Scotia, Acts were passed by the Legislature, at its recent session, making provision for the incorporation of agricultural societies and county farmers associations under the "Farmers Co-operative Societies Act 1914." This 1914 Act provided for the incorporation of bodies of farmers without fee for the purpose of purchasing commodities, ordinarily used on the farm, and of selling farm products. The legislation of 1915 makes it possible for the members of the agricultural societies, of which there are some 230, and of the county farmers associations, of which there are 12, to become incorporated and to buy and sell co-operatively under this 1914 Act. The idea is that the agricultural societies shall constitute the small local units and the county associations the larger central units for each county. When the movement has reached to the extent of county organization, it is planned that a still larger organization, possibly an extension of the present United Fruit Companies, shall form the large central unit. If this scheme materializes, the possibilities of affecting a saving to farmers in the purchase of feeds, seeds, fertilizers, etc., to say nothing of advantageous marketing of farm products, will be enormous.

Bill No. 105 "An Act To Encourage The Growing of Wheat and Other Cereals" gives the Governor-in-Council power to expend a sum not exceeding \$10,000 in such manner as may be deemed expedient for the purposes of the bill. Under the provisions of this bill the Department of Agriculture has already secured a quantity

of seed wheat which is being sold at cost in those sections of the province where wheat growing has not been carried on for many years but where, owing to present conditions, the farmers were desirous of producing enough flour for their own use. It is further contemplated to assist in the erection of at least two modern flour mills, one in the fruit section at the western end of the province, and one in Cape Breton at the Eastern end of the province, these being parts of the country where the farmers have no facilities for getting their wheat ground.

Bill No. 51, an amendment to "The Injurious Insect Pest and Plant Disease Act of 1911" provides for the collection of fees to meet the cost of inspection and fumigation of nursery stock shipped into Nova Scotia. This measure applies to shipments from the various provinces of the Dominion as well as from foreign countries. The fees prescribed are practically the same as those now in force in British Columbia.

Bill No. 99, an amendment to "The Act for the Encouragement of Settlement on Farm Lands 1912", provides for the deferment of payments due on moneys advanced under the provision of the 1912 Act for the first five years on recommendation of the mortgaging company. Under the 1912 Act provisions were made by which the Government and a "loan company" could agree to advance to a farmer on his farm lands and buildings an amount not exceeding 80 per cent of the value of such farm land and buildings as appraised by such a loan company. Up to Sept. 30th, 1914, \$83,000 had been advanced to new settlers as well as old settlers. A new settler was

bound to have some difficulty in paying interest charges for the first few years until such time as his farm had become sufficiently productive. The judicious deferment of interest and other payments for the first year or two will give the new settler a much better chance than he would have if compelled to make full payment for the first year of his settlement.

APPROPRIATIONS FOR AGRICULTURE, 1915

The appropriations for the year are as follows:—

Agricultural College and Farm...	\$33,000
For general purposes subject to provisions of the Revised Statutes and amending Acts....	34,750

Agricultural Societies.....	15,000
Total.....	\$82,750

CAPITAL APPROPRIATIONS

Agricultural College.....	7,500
Grand total.....	\$90,250

In addition the Governor-in-Council may borrow a sum not exceeding \$120,000 for Science Building at Agricultural College. The interest on this amount is to be paid from the Federal appropriation for the aid of agriculture. Besides the Governor-in-Council may appropriate a sum not exceeding \$10,000 to encourage the growing of wheat and other cereals.

QUEBEC

THE LATE MR. G. A. GIGAULT

BY H. NAGANT, EDITOR LE JOURNAL D'AGRICULTURE

IT is with the deepest regret that we learn of the death of Mr. G. A. Gigault, Deputy Minister of Agriculture for the province of Quebec, which came almost suddenly on the 25th of April. Mr. Gigault was an apostle of agriculture. His departure is a great loss for the province and particularly for the agricultural community whose prosperity had always been the object of his work and of his thought.

Mr. Gigault was 70 years of age. Born at St. Mathias, Rouville county, he studied at the seminary of St. Hyacinthe and was received as a notary in 1867.

He represented his native county (Rouville) in the Dominion Parliament from 1878 to 1891. It was at his request that a special committee of the House of Commons was formed in 1884 to enquire as to the best means to adopt to encourage and develop the agricultural industry which was then in a depressed condition. As an active member of this

committee, Mr. Gigault displayed during two years, great activity in the study of the question which he had so much at heart. It was on the report of this committee, which was made in 1886, that a bill was introduced into Parliament by the Minister of Agriculture, the Honourable John Carling, providing for the establishment of a central experimental farm and four branch farms, which was the beginning of the present extensive system of experimental farms and stations.

Appointed Deputy Minister of Agriculture for the province of Quebec in 1892, Mr. Gigault worked ceaselessly for twenty-three years for the improvement of agricultural industries.

He organized the agricultural societies in order to make their work more efficient. He took special interest in the agricultural clubs and it was at his suggestion that the first agricultural co-operative societies in Quebec were established.

Mr. Gigault was recognized as an authority in matters of agricultural



THE LATE MR. G. A. GIGAULT

organization and legislation; his opinions always carried much weight and were appreciated by officials of the United States, who frequently invited him to discuss the methods, progress and successes of the systems with which he was associated.

If it has been justly said that "he who makes two blades of grass grow where only one grew before is a public benefactor", with what feeling of gratitude must we appreciate the work of this man, who, during his whole life-time, by deed and by speech, led an agricultural campaign with an energy and an earnestness that no difficulty could ever abate or discourage, and to whom our provincial agriculture owes the greater part of the progress made during the last thirty years.

A devout Catholic, an upright man, scrupulously honest, of a great nobleness of character, this worthy man whose motto always was "duty first" enjoys now a well-earned rest.

REPORT ON SEED IMPROVEMENT

THE report for 1914 of the Canadian Seed Growers' Association on seed improvement in the province of Quebec indicates continual progress. It deals in large measure with the Quebec Seed Growers' Co-operative Agricultural Association, which was formed last December to continue the task commenced four years ago, when the Quebec Department of Agriculture offered a special grant for the encouragement of the production of high-class seed grain. In that year, or in 1911, the number of societies which qualified for the grant, amounting to \$75 in each case, was 54. Last year it was 64. The province also distributed prizes, paying one-third of the amount involved itself and receiving two-thirds from the federal government. In 1911

the sum so distributed in prizes was \$1,739. In 1914 it was \$4,892.

A provincial exhibition is also held every year. This, too, shows rapid development, the entries in 1911 being 275 and, for 1915, 540, calling for the distribution of prizes to the amount of \$828. In addition, local exhibitions are held by agricultural societies. These have also made consistent advancement, the number of exhibitions in 1911 being 7 with \$350 in prizes, and, in 1914, 23 with \$1,678 in awards. Special competitions are held as well, one being between farmers who have obtained prizes in the preceding year for standing crops of seed grain, and another for registered and specially selected seed, open only to members of the Quebec Seed Growers' Co-operative Agricultural Association.

The headquarters of the provincial association are at Ste. Rosalie, in Bagot County, where there is a good grain elevator situated at a junction where the Canadian Pacific, Grand Trunk and Intercolonial railways all cross each other. It is expected that there will be the fullest co-operation between the Canadian Seed Growers' Association generally and the new organization, which has already a capital of \$14,000. Shares are \$10 each, payable in yearly instalments of one dollar. It is anticipated that the present subscribed capital will be doubled in short order. Already a large quantity of registered seed has been purchased and distributed to members. So promising

are the prospects that provisions have even now been formulated on which a dividend not exceeding 6 per cent may be paid.

Experts will visit the fields during the summer on which choice seed is being raised to see that conditions are favourable. Modern machinery for the cleaning and selection of seed has been installed in the elevator and two clover hullers for demonstration purposes have been in operation under the direct auspices of the provincial Minister of Agriculture for the past four years. Many small co-operative societies also own cleaners and hullers. The total result has been the offering for sale of thousands of pounds of good clover seed.

ONTARIO

LEGISLATION AT LAST LEGISLATIVE SESSION

BY W. BERT ROADHOUSE, DEPUTY MINISTER OF AGRICULTURE

THE 1915 session of the Ontario Legislature was one of the shortest on record and its business was confined very largely to matters rendered necessary on account of the war, and other matters of urgency.

AGRICULTURAL LEGISLATION

There was practically no legislation on agricultural subjects. One change which required an amendment to the Act was in reference to the administration of the district representative work. When this plan was adopted several years ago, it was decided that the appointments should be made and salaries paid under the Department of Education, while the Department of Agriculture took responsibility for the outside work aside from the school instruction and paid the expenses in connection therewith. The outside work having developed to be the chief work of the district representatives, it was decided that they should

be entirely under the Department of Agriculture, and this change will take effect on the first of the next fiscal year, which is November 1st. The change is one of administration only and will make little or no difference in the actual work of the men in the field, who will continue to devote as much interest to school fairs, courses in agriculture, as well as many other activities, as in the past. It will mean that the Department of Education will put into operation another plan for the encouragement of the teaching of agriculture in high and continuation schools and this is now under consideration.

AGRICULTURAL APPROPRIATIONS

Provision has been made for the carrying on of the work of the Department in the usual way, as the following statement of appropriations (including capital account) for the year ending October 31st, 1915, will show:—

Civil Government, Printing Reports and Bulletins, Statistics, Miscellaneous.....	69,775.00
Agricultural College.....	350,893.29
Agricultural and Horticultural Societies' Branch.....	163,700.00
Live Stock Branch.....	57,325.00
Institutes' Branch.....	41,000.00
Dairy Branch.....	64,150.00
Fruit Branch.....	62,025.00
Colonization and Immigration.....	137,125.00
Ontario Veterinary College.....	68,095.30
District Representatives.....	40,600.00
Demonstration Farm.....	10,000.00
*Director of Elementary Agricultural Education.....	2,600.00
*Instruction in Agriculture and Horticulture and Grants to School Gardens in Public and Separate Schools and contingencies.....	4,500.00
*Instruction in Industrial Arts and Household Science, grants and contingencies.....	2,000.00
*Travelling expenses of Normal School students to Rural Public Schools and for Nature Study.....	1,200.00
*School Gardens for Normal Schools.....	1,000.00
*Agricultural Training in High Schools by the District Representatives....	43,200.00
*Special Industrial and Agricultural Education.....	5,000.00
Total.....	\$1,124,188.59

*Granted by the Department of Education.

The main difference between the above appropriations and those for last year is due to the completion of important buildings which were under construction a year ago and the consequent elimination of the appropriations therefor. These consisted of the new dining hall at the Ontario Agricultural College, which has been in operation for the past season, and the new Ontario Veterinary College, which has already been described in THE GAZETTE.

Although the appropriations for colonization and immigration remain the same, this work has naturally been very materially affected by the outbreak of hostilities and no efforts are being made to bring farm labourers or investors from Great Britain or Ireland. Instead, the Colonization Branch has been sending a representative to the cities and larger towns of the province with a view to selecting from among the unemployed, those who are most suitable for farm work.

Of the appropriation for agricultural societies \$75,000 is required for grants. In view of the financial conditions prevailing at the outbreak of the war, it looked as though the Government might have to econo-

mize in this regard, but it is now definitely stated that these grants will be paid in full.

AGRICULTURAL POLICIES

The main discussion on agricultural matters during the session came up on a motion submitted by the Opposition. It was moved by Mr. Thomas Marshall, Member for Lincoln, and read as follows:—

“That in view of the serious decline in our rural populations, accompanied by a marked falling off in food production in the face of Ontario's unsurpassed agricultural possibilities and millions of acres of unoccupied agricultural land, this House is of the opinion that a great advance in the agricultural policy of the Government is one of the most urgent and vital needs of Ontario to-day, such policy to include:—

(1) Making more available to rural communities the scientific and technical knowledge taught in our agricultural college by the establishment of agricultural schools and demonstration farms throughout the province; (2) The inauguration of an effective system of rural credits; (3) The development of co-operative effort in buying and selling; (4) Financial assistance by way of loans at a low rate of interest, on the security of land and improvements, to assist desirable settlers in establishing themselves in the newer parts of the province, and to enable farmers in the older parts of the province to improve and increase the productivity of their lands.”

The mover of the motion was replied to by the Minister of Agriculture, Honourable James S. Duff, who, in addition to reviewing the general work of the Department, dealt specially with the suggestions advanced in the motion. In reference to further agricultural schools he pointed out that this had always been the policy of the late Sir James Whitney, but could only be acted upon when there was a sentiment which would support such schools in the rural districts. This sentiment was being created by the work of the district representatives, and if in the future it was found that agricultural schools were justifiable, it would be because of the preliminary work by these representatives. As for demonstration farms, he submitted that the policy which had been carried on by the Department was more suitable to the needs of Ontario and more effective as an educational method. As for co-operation, he pointed out that a Branch of the Department had been organized to devote itself entirely to this work and had been doing so for the past year. In regard to rural credits and general financial assistance, he stated that the department had been studying the subject and had collected a great deal of information with reference to it, but no decision had been arrived at as yet.

The Government amendment which was substituted for the motion read as follows:—

'This House recognizes the soundness and stability of Ontario Agriculture as emphasized by the recent industrial and financial crisis through which the province, in common with the rest of the world, has passed, and this House notes with satisfaction the improved conditions of the agricultural industry as illustrated among other things by higher standards and increased returns per acre, and this House desires to place on record its appreciation of the encouragement of agricultural instruction in schools; the appointment of District Representatives; the holding of short courses and Rural School fairs; the giving of farm demonstrations, and the encouragement to co-operative organization and effort, and this House commends

the well-defined policy of the Government to continue this work and to take such other steps as may be necessary, and to aid the development of the newer districts by the construction of roads; the carrying on of experimental work in farming; the advancing of seed to settlers and every other practical method."

GOOD ROADS LEGISLATION

Good roads are a matter of first importance to the farmers, and consequently it may be noted here that two very important bills looking to the improvement of the highways of the province were introduced and passed, being in charge of the Honourable F. G. MacdIarmid, the new Minister of Public Works, under whose department the administration of this matter comes. One was an amendment to the Highway Improvement Act, under which most of the highway improvement has been done during the past twelve years or more. This amendment increased the amount of aid from the province from one-third as in the past to 40 per cent. It also made the members of county councils personally liable for seeing that all money raised by an issue of debentures for road construction should be used for this purpose and no other.

The other bill was cited as the Ontario Highway Act, and follows up the recommendations of the Highway Commission which was appointed over a year ago. It contains many important provisions, one of the most important being that the province will contribute a sum equal to 20 per cent of moneys expended by a county upon the maintenance and repair of roads under the Highways Improvement Act. It also provides that the province will contribute up to \$150 for the salary of a road overseer or foreman appointed by any township municipality. Provision is also made whereby suburban roads leading into cities of over 10,000 may be constructed under a commission and the cost borne on a ratio of 30 per cent by the county, 30 per cent by the city or town and 40

per cent by the province, providing that the amount contributed by the province shall not exceed \$4,000 per mile.

Similarly, provision is made for the construction of any road which is designated by the Lieutenant Governor-in-Council as a main road and which shall be constructed by a board of trustees of not more than five members. Provincial aid to such a road is on the same basis as

urban roads. Power is also given to the Lieutenant Governor-in-Council to prohibit or regulate the erection of sign boards and fix a license fee for the same. It is not expected that this Act will become effective this year unless in exceptional cases, where the county council at their June sessions are prepared to proceed. The Act or any portion of it may be brought into force by a proclamation by the Lieutenant Governor-in-Council.

NEW ONTARIO DEMONSTRATION FARM

BY C. F. BAILEY, B.S.A., ASSISTANT DEPUTY MINISTER OF AGRICULTURE

IN the great clay belt of the North Country, 105 miles north of New Liskeard and 32 miles south of Cochrane, is situated the Demonstration Farm of New Ontario at Monteith. The farm includes 850 acres of land, in the townships of Clerque and Walker, 750 of which are heavily timbered mainly with spruce, fir, tamarac and white wood; 35 acres are cleared and used for pasture, and the remaining 65 acres are cleared and have been under cultivation for from one to four years. The farm and surrounding country are of a rolling nature, permitting good surface drainage. The soil is a very heavy dark clay, characteristic of the clay belt in the north and while difficult to work, responds readily to careful treatment. Fortunately land newly broken in the north has a liberal supply of decayed vegetable matter which assists very materially in improving the texture of the clay soil.

The Monteith Farm was established five years ago. At that time, it consisted of virgin forest and the first and second years were devoted mainly to lumbering and breaking up the new land, very little attention being given to agriculture. Since that time, however, the reverse has been the case, and every effort has

been toward developing the land under cultivation. The forest is cleared and new land broken, only when it does not interfere with the regular farm operations. The buildings at the present time are not extensive, but are quite sufficient for the present requirements, and will be added to as necessity demands. They comprise a modern dwelling for the superintendent, two small houses for hired men, a 60 x 40 cattle stable, a 25 x 30 horse stable, a modern poultry house and other out-buildings. The live stock kept includes Clydesdale horses, milking Shorthorn cattle, Shropshire sheep, Yorkshire swine and New Ontario hens. These breeds were selected because it was felt that they were best suited to New Ontario conditions. Every effort is being made to induce the settlers to improve their live stock and to encourage them to stick to utility breeds. For example, the Clydesdale stallion kept at the farm is travelled through the settled section of the district and a nominal fee of \$5.00 is charged for service. Last year over 18 mares were bred and the prospects are that double this number will be bred in 1915. This will naturally have a very desirable effect upon the horses in that section of the country. Similarly, bulls, rams and boars are

placed at the disposal of farmers free-of-charge, provided they organize themselves into Live Stock Improvement Associations and undertake to feed and care for the animals supplied. Where animals are sold to bona fide settlers for breeding purposes the price charged is very little in advance of the value of grade animals—for example, during the past year, sow pigs out of well bred sows sired by an imported boar were sold for \$4.00 each, at six weeks of age to settlers signing an

to yield and other desirable characteristics. In this way the desirable varieties are recommended to the farmers. Among the crops that have proven to be adaptable to northern conditions are the marquis wheat, O.A.C. 72 oats, and O.A.C. 21 barley. The O.A.C. 72 oats have demonstrated their value from the fact that the crop produced at Monteith last year averaged 70 bushels per acre and of first class quality. It is intended that the function of the farm shall be not only to demonstrate



HON. J. S. DUFF, MINISTER OF AGRICULTURE FOR ONTARIO, STANDING IN FIELD OF FALL WHEAT ON THE MONTEITH FARM, JULY, 1914

agreement to use the animals for breeding purposes.

In the same way, an effort is being made in regard to field crops, but, until such time as the country has become more settled and opened up, only the hardier classes of crops can be grown. These include wheat, fall and spring, barley, oats, peas, clovers, grasses, potatoes, turnips and mangels in the main. Five or six of the standard varieties of the crops mentioned above are being grown under the same conditions of soil and cultivation, and careful records kept as

the value of one variety as against another but also to become a source of supply of good seed for the settlers at reasonable prices. As an example of what is being done in this respect, it might be mentioned that O.A.C. 72 oats are being sold to bona fide settlers for seeding purposes at 75 cents per bushel. While the extent of this feature of the work is somewhat limited at the present time, the demand for good seed is so great as to warrant the extension of this important function of the farm from year to year.

As might naturally be supposed, the tenacious nature of the soil makes drainage an important factor. The rolling nature of the land, which facilitates surface drainage, overcomes this difficulty to some extent, but there is no doubt that under-drainage will have a desirable effect upon the physical texture of the soil and the length of the growing season. However, it is not thought wise to advocate drainage extensively to the settlers, until such a time as it has been thoroughly demonstrated that the increase in yields warrants the expenditure. With this in mind a traction ditcher and cement tile machine were purchased last year for the farm and some 30 acres under-drained. These drains were put in, in such a way as to facilitate the growing of crops on drained and undrained land where other conditions are practically equal. The result of this work will no doubt prove very interesting and will be watched closely by the farmers visiting the farm each year. Similarly, methods of cultivation are receiving attention and experiments are being conducted along these lines.

One among many might be mentioned: fall versus spring ploughing. As might be supposed, the clay soils are greatly benefited by fall ploughing and this has been clearly demonstrated at the Monteith farm.

The clearing of land and bringing it under cultivation is one of the large problems to be faced by the settler in New Ontario. Methods of chopping, burning and stumping are worthy of close study, as is the class of crops best suited to the newly broken soil. In this connection, blocks of timbered land are being measured and each block cleared by a different method. An accurate account is kept of the labour employed, so that definite information may be secured as to the cost of

clearing and the most efficient methods recommended. It might be well to add that a farm-accounting system has been adopted and records are being kept of all farming operations. In order that the various lines of work may be conducted in an efficient manner and studied from a practical and scientific standpoint, a graduate of the Ontario Agricultural College has been appointed manager of the farm. Mr. R. H. Clemens, the farm superintendent, is always ready to advise settlers and to attend agricultural meetings of various kinds throughout the district.

Each summer for the past two years, a farmers' picnic or short course has been held at the farm, in order that farmers might have an opportunity of seeing for themselves the work which was being carried on, and have brought to them the best information available that would assist them in dealing with their own problems. The Timiskaming and Northern Ontario Railway co-operated by giving very cheap excursion rates, and over 1,500 people were present on each occasion from sections between New Liskeard and Cochrane. Addresses were delivered by several prominent men, and also by experts from the Ontario Agricultural College, who had come up for that special purpose. Those present showed the very keenest interest in all the information given, and each of the experts, particularly the farm superintendent, was kept busy replying to questions which showed at once the intelligence and enterprise of the farmers as well as their appreciation of the information given. This picnic is now recognized as an annual event and farmers have come to look forward to visiting the farm as the farmers of Old Ontario have to visiting the college at Guelph from year to year.

POTATO WAR PLOTS FOR RURAL SCHOOL CHILDREN

BY C. F. BAILEY, B.S.A., ASSISTANT DEPUTY MINISTER OF AGRICULTURE

THOSE who have been reading the columns of THE GAZETTE are no doubt familiar with the rural school fair movement in Ontario and its tremendous growth during the past few years.

This year, plans are being made by the Ontario Department of Agriculture, through the district representatives in the various counties, to conduct over 235 school fairs which will represent in the neighbourhood of 2,300 schools, about one-half the number of rural schools in the province. This will mean that over 45,000 school children, in the rural districts of Ontario, have been supplied with pure seed of various kinds and have been given instruction in methods of planting, cultivation, etc. It must be admitted by all that the school fair affords an excellent opportunity of introducing desirable varieties of farm crops and, in addition, is a practical method of interesting the boys and girls in better agriculture.

For the year 1915, when our Empire is engaged in a struggle for liberty, it was felt that the rural school children would welcome some practical suggestions as to how they might do their part in assisting in this great cause. With this in mind, it has been suggested to the children

taking part in rural school fairs in Ontario, that as many as can should grow plots of potatoes, the crop to be sold, and the funds thus realized to be devoted to some patriotic cause. This idea has met with most encouraging response on the part of the children, and from present indications, the proceeds from the potato war plot will run into thousands of dollars. These plots are each to be 1/80 of an acre in area; the seed is being supplied by the Department of Agriculture in order that only the standard varieties of potatoes shall be used for this purpose. The plots will be inspected by the district representatives, as are all plots grown by children for school fairs, and prizes will be given for the best kept plots, also for the best "war plot" potatoes exhibited at the school fairs.

Plans for the disposal of the potatoes have not as yet been finally decided upon. In a general way, however, it may be said that the potatoes will be shipped, as early in the fall as is practicable to a number of the larger centres, such as Toronto, Ottawa, Hamilton, London, and sold direct to the consumer. The funds thus realized will be handed over to some patriotic organization as a gift from the rural school children of Ontario.

INCREASED PRODUCTION OF SOME OF THE BEST VARIETIES OF FARM CROPS

BY PROF. C. A. ZAVITZ, ONTARIO AGRICULTURAL COLLEGE

THE market values of oats, barley, and winter wheat grown in Ontario during the past sixteen years amount to upwards of one hundred million dollars over those of the previous sixteen years, owing simply to the increases in yields of these grains per acre.

We are, however, only beginning to realize the possibilities of increased crop production in Ontario. I believe that the next few years will show greater progress than ever before along this line. With rather a severe four years' rotation and with ordinary manuring we have produced crops at

the College which in the average of a number of years fully double the yields produced throughout the province. This increase has been brought about largely by the use of the best varieties, the careful selection of seed, the proper cultivation of the soil, and seeding at the right time. Many farmers do not yet realize the great importance of sowing seed of high perfection. The Ontario Agricultural College at Guelph has been furnishing to the farmers of Ontario, and other colleges and experiment stations in Canada have been furnishing to the farmers of the different provinces, choice seeds of some of the best varieties of farm crops. Small quantities of really good seed can be increased rapidly to large amounts. In order to emphasize this point permit me to give a few illustrations.

In the spring of 1903 the writer selected a choice plant of oats. The product of the one seed was carefully planted in the spring of 1904, and the crop of that year was sown with the grain drill in 1905, in which year slightly over one hundred bushels of oats were obtained as the direct result of one seed in the third season.

The first year we distributed the O. A. C. No. 21 barley in the co-operative experiments, a farmer in Huron county sowed one pound of this variety on a plot one rod wide by two rods long in comparison with three other varieties. The O.A.C. No. 21 variety gave the best results, and the grain obtained from this little plot was sown in the spring of the following year. This variety again gave satisfactory results, and all of the good seed obtained was sown in the following spring and upwards of nine hundred bushels of the O. A. C. No. 21 barley were produced in the third year as the direct result from one pound of seed which was sown in the experiment. This was practically all sold by the grower for \$1.50 per bushel.

The seed of the O. A. C. No. 72 oats was first distributed in the spring of 1911 when one pound was sent to each of three hundred Ontario farmers, along with one pound of each of two other varieties. In York county a farmer and his son each received the experimental material and conducted separate tests in that year. The O. A. C. No. 72 variety gave excellent results in both tests, and the following spring the father transferred to the son the crop of O. A. C. No. 72 oats which he obtained from the one pound sample received from the College. The son, therefore, had the product of two pounds of oats to sow in the spring of 1912, and obtained slightly over ninety bushels. He sold three bushels of these for \$25, sowed the rest in the spring of 1913, and secured from that season's crop over 3,400 bushels of oats of the O. A. C. No. 72 variety. These were nearly all sold at from \$2.25 to \$2.50 per bushel.

It will be seen that the grain crops increase rapidly if the very best varieties are used and careful methods of production are followed. Although the O. A. C. No. 21 barley was not distributed until 1906 it is probably the most extensively grown barley in Ontario at the present time. The O. A. C. No. 72 variety of oats was not distributed until 1911, and many thousands of bushels were grown in 1914. The variety is increasing rapidly.

Every farmer in Canada should endeavour to grow the best varieties of farm crops on his own particular farm. If he is not now growing the most suitable kinds, he should endeavour to secure them as soon as possible from the agricultural college or the experimental station of his own province. Increased production and high quality as they apply to crop production are important for both the producer and the consumer. May each Canadian farmer do his best.

SHORT COURSES ANNOUNCED

THE following short courses are announced by President Creelman to be held at the Ontario Agricultural College:—

(1) Commencing July 5th and lasting five weeks, there will be a course in agriculture for the school teachers of the province.

(2) From July 26th to August 7th, all the Public School inspectors will assemble for a two weeks' course in agriculture and for a conference and discussion of their business.

(3) A new course of two weeks from July 26th to August 7th called "School for Rural Leadership" will be held, to which all ministers will be

invited. The executive bodies of the different religious denominations are also arranging to have special representatives present to discuss some phases of the work.

The men's residence is to be open at that time and students of all ages will be made comfortable. These two weeks promise to be an enjoyable period and should result in the improvement of social life in the country. It is to be in no sense a course in theology, but has been arranged solely with the idea of fitting leaders throughout the country to be able to talk to their constituents in terms of their daily life.

NOTES FROM DISTRICT REPRESENTATIVES

That the work of the district representatives of the Ontario Department of Agriculture is meeting with approbation is evidenced by the uses they are making of the offices. For instance, in the county of Hastings the office record shows that from November 1st to April 14th, there have been 486 personal calls, and 119 telephone calls, to discuss some agricultural topic or secure information on some important subject. Of late many have come in to get particulars on the treatment of grain and potatoes for smut, and to secure inoculation for clovers; also to get particulars re *spraying and pruning* of orchards.

A *Banner Oats Association* has recently been formed with the hope of producing car-load lots of seed oats of this highly recommended variety, and also a *Horse Breeders' Club* has been formed under the rules and regulations laid down by the Live Stock Branch at Ottawa in the hope of obtaining Federal assistance which is being granted for the improvement of heavy horses.—A. D. McIntosh, District Representative, Hastings Co.

Extract from report dated April 3rd from N. C. MacKay, B.S.A., district representative for Bruce county at Walkerton:

"On Saturday afternoon of the previous week we had a meeting of the live stock breeders of this part of the county and they organized themselves into the "Bruce County Stock Breeders' Club." Mr. Thos. Jasper, Carlsruhe, R.R., President; W. A. Tolton, Walkerton, R.R., Vice-President; and myself as Secretary. They also elected 10 directors scattered throughout the townships. It is the purpose to hold a pure bred stock sale in February or March of next year and the directors were all very enthusiastic regarding this. It is the purpose to have every animal inspected and nothing but A 1 stock included. At the time of entry every member has to submit pedigree, also make a deposit of \$10, this to be forfeited if animal is not presented on day of sale."

Extract from letter dated April 6 from P. Stewart, B.S.A., district representative for Kenora district at Kenora:

"Before the middle of next week I expect to distribute among the farmers of Oxdrift and Dryden 450 bushels of seed peas supplied on contract basis by W. P. Niles, Ltd., of Wellington. There has never been any seed peas grown in the district but I was able to convince the above firm of our possibilities and should the experiment prove successful it will be the beginning of a profitable industry, independent of local markets."

Extract from report dated April 3rd, from R. L. Vining, B.S.A., district representative for Wentworth county at Hamilton:

"Probably we hold the record for short course organization this spring. On Wednesday night, at the invitation of a crowd of fellows back of Stoney Creek, I attended their meeting and explained the agricultural short course—its object and plan. I am glad to inform you that they have already enrolled twenty-six fellows to attend the short course of 1916, which will be held at Stoney Creek. We held an election of officers, and a splendid executive of five members of the class will have charge of the recruiting during the summer. The whole thing was almost too easy, but it should make a rousing good short course next winter."

Extract from letter dated April 22nd, from J. Laughland, B.S.A., district representative for Simcoe county at Collingwood:

"I am mailing under separate cover copies of different issues of the Barrie Advance containing articles I have contributed on agricultural topics. The Advance people are always anxious to publish anything in connection with our work, and when I offered to write these articles, they were very anxious to get them. My idea in writing them was, in the first place to follow up what had been brought out at the agricultural conferences. I wanted to show some of the ways that production from the farm might be increased. In the

second place I felt that these articles would keep the work we are doing before the people of the county and help us in reaching people that we might otherwise not reach. I have already had communications from quite a number of farmers who have read these articles and wanted some further information along the lines that I had dealt with."

W. G. Nixon, B.S.A., district representative for the Temiskaming district at New Liskeard writes as follows:

"There is in many sections easily 50 per cent more land ready for cultivation. More fall ploughing was done last year than ever before. The provincial government is supplying the settlers with thousands of bushels of seed grain. Everywhere agricultural activity prevails and farmers are all expectant and anxious that the exceptional season experienced thus far shall continue. The anxiety felt by many is acting as a stimulus to spur them on to greater activity, in preparing their soil, getting their seed in, in a better condition and causing a sort of general awakening to the necessity of doing one's best. There can be no doubt but that there is a very great future before the agriculturists of the district who do their best and stay with the game."

TENT CATERPILLAR COMPETITION

Extract from report dated May 1st from J. C. Steckley, district representative for York county:

"We are going to have another serious outbreak of tent caterpillars this year and we are just planning a campaign against them now. I wrote articles concerning the pest to all the local papers in the county. Then we are going to arrange a series of spraying demonstrations throughout the country. We are also contemplating placarding the whole county, giving them the most successful method of eradicating.

"In town we have started a com-

petition for the boys, which is outlined briefly on the enclosed sheet. In this way we hope to get rid of a lot of the caterpillars which are on the wild trees in vacant lots and other places in the town."

COMPETITION

Open to boys under 16 years of age of the town of Newmarket.

The following cash prizes will be awarded to the boys collecting the largest number of tent caterpillar nests, 1st, \$5.00; 2nd, \$3.00; 3rd, \$2.00; 4th, \$1.00.

RULES

1. At least ten boys must enter the competition.

2. Caterpillar nests should be collected in the evening as most of the caterpillars are out during the day; nests in competition will not be counted unless they contain caterpillars.

3. Nests may be taken from trees either in town or country.

4. Competition opens May 1st, and closes May 22nd.

5. Nests of caterpillars must be brought to the department of agriculture the same day they are collected, between 7.30 and 8 o'clock at night, when they will be counted and destroyed.

MANITOBA

AGRICULTURAL LEGISLATION

AT the last session of the Manitoba legislature acts were passed enabling "Municipalities to Borrow Limited Amounts of Money for Seed Grain Purposes"; to make "Further Provisions for Dispensation of Seed grain"; "Respecting Grain Seed in Un-organized Districts of the Province"; "To Incorporate the Manitoba Beekeepers' Association"; "Protecting Dairies, Creameries and Cheese Factories"; "To Amend the Horse Breeders' Act"; "To Amend the Game Protection Act"; "To Amend The Charity Aid Act."

The act enabling municipalities to borrow money for seed purposes provides that within six months of the passing of the Act any municipality so desiring can borrow a sum not exceeding \$30,000 for the purpose of lending the same to farmers for the purchase of seed grain. Debentures issued under the act must be for a term not exceeding five years and must not bear interest exceeding 6 per cent per

annum. The amount so borrowed is to be a separate account from all other transactions of the municipality. The bill respecting the dispensation of the seed arranged for supplying seed to the wives or representatives of owners of land who have volunteered for the war.

The Un-organized Districts Act provides that seed grain advanced to any single individual shall not exceed \$250 in value and establishes safeguards for the collection of payments.

The Beekeepers' Act authorizes the incorporation of a beekeepers' association, the subscription for membership of which is not to be less than one dollar per annum.

The act respecting dairies, etc., is divided into three parts, the first providing for the incorporation of creameries and cheese factories, the second, for the sale of milk and the manufacture of milk products, and the third describing the powers and limitations, rules and regulations of the Manitoba Dairy Association.

Schedules attached to the act give a list of 25 creameries and 17 cheese factories with the name of the secretary and his post-office address in each case.

GRANTS FOR AGRICULTURE AND IMMIGRATION

The Horse Breeders' Act is amended so as to come into force on proclamation of the Lieutenant Governor-in-Council. It is construed that this act came into operation on the 31st December, 1914.

The following estimates were passed for the Department of Agriculture and Immigration:

Salaries	\$14,700.00
Expenses	1,500.00
Agriculture and Statistics ..	75,350.00
Agricultural College	187,50 .00
Immigration	41,000.00
Grants	155,647.10
Seed Grain Loans	100,000.00
Miscellaneous	33,000.00
	<hr/>
	\$608,697.10

The amount devoted to Agriculture and Statistics is thus distributed:

Electoral Division Agricultural Societies and Farmers' Institutes	\$52,000
Agricultural Statistics	3,000
Noxious Weeds Inspection ..	7,000
Superintendent of Agricultural Societies	2,300
Pure Bred Cattle Breeders' Association	700
Manitoba Sheep Breeders' Association	500
Manitoba Swine Breeders' Association	300
Manitoba Horse Breeders' Association	500
Manitoba Dairy Association ..	300
Aid to Poultry Association ..	1,000
Aid to Horticultural Societies	1,000
Brandon Winter Fair	750
Aid to Ploughing Matches ...	1,000
Agricultural and Arts' Association	5,000

The Agricultural College item is divided: salaries, \$86,000, maintenance \$66,500, fuel \$35,000. The amount set down under the head of "Grants" is all for general charitable purposes. The "Miscellaneous" item includes \$25,000 for game protection and \$6,000 for vital statistics registration. For printing and marriage license administration \$500 each is allotted and \$1,000 comes under the head of "Unforeseen".

TILE-DRAINING SUCCESSFUL AT AGRICULTURAL COLLEGE

DURING the past two years considerable work in tile-draining has been done at the Manitoba Agricultural College farm just south of the city, for the purpose of determining the extent to which it would be profitable for the farmers of the Red River Valley to tile-drain their farms. So far the results have been satisfactory. It has been interesting to note that for the two years since the tile has been laid some of the drains have begun to discharge in both years between March 15th and 17th, thus indicating that tile-drains will be a material aid in removing surplus water from the soil early in the spring.

On March 23rd of this year six out

of eight main drains were discharging. The rate of discharge from three was measured and the following results obtained:—

Main "A" was discharging .21 gallons per second, or 2,803 cubic feet in 24 hours.

Main "J" was discharging .34 gallons per second, or 4,690 cubic feet in 24 hours.

Main "E" was discharging .62 gallons per second, or 8,572 cubic feet in 24 hours.

If this water had not been removed, it would have caused the soil to become puddled, and caused it to remain cold and late. Poor drainage is one of the chief causes of the late seeding and low crop yields which often occur in certain localities in the Red River Valley.

DEMONSTRATION FARMS

ON a recent visit to the Demonstration farm at Killarney, Manitoba, Prof. S. A. Bedford, Deputy Minister of Agriculture of the province, superintended the boring of two wells—one for the house of the manager of the Demonstration farm and one for the barns. Mr. Bedford found that the farm had been well cleaned up and had been greatly improved by the work put on it last fall. A portion of the

farm, it is expected, will be in crop this spring. Hon. George Lawrence, Minister of Agriculture, has ordered a number of large and small fruit trees to be set out as a commencement and this stock will be added to from time to time. This valuable work is only one more instance of expansion which is made possible by the provisions of THE AGRICULTURAL INSTRUCTION ACT.

FIELD REPRESENTATIVES APPOINTED

THE following graduates of the Manitoba Agricultural College have been appointed field representatives of the Manitoba Government, their duties to commence forthwith: Lester V. Lohr, W. T. G. Wiener, H. F. Danielson, Nelson S. Smith, and W. J. Stone. Other representatives will be appointed as required and as suitable men become available.

To each of these field representatives a district is apportioned for the summer months. Mr. Lohr will have his headquarters at Neepawa; Mr. Wiener will make Morris the centre of his operations; Mr. Danielson will be located at Arborg; Mr. Smith at Killarney, and Mr. Stone at Dauphin. They will be available, however, for work in any part of the province if the extension department of the Agricultural College or

the Department of Agriculture require their services.

These field men have received instructions from the Hon. Minister of Agriculture to endeavour in every way to make themselves as useful as possible to the farmers of their several districts and to the agricultural population of the province generally. They will keep in close touch with all the demonstration farms in their respective districts and will take part in the operations of the farms more or less.

Hon. George Lawrence has likewise invited the agriculturists of the province to avail themselves of the advice and services of these young men graduates and to lend their support and co-operation in the department's efforts to render practical assistance to the farmers of Manitoba.

CALF-FEEDING COMPETITION

BY H. J. MOORHOUSE, ASSISTANT DEPUTY MINISTER OF AGRICULTURE

THE first calf-feeding competition for boys ever held in Canada was one of the interesting events at the Winter Fair, Brandon, Manitoba, in March, 1914. It was inaugurated by the

Manitoba Winter Fair and Fat Stock Association with the idea of stimulating among the boys, in a practical way, a greater interest in feeding and caring for cattle. At that first competition seven lads, all under seven-

teen years of age, entered with exhibits of such excellence that every patron of Manitoba's Winter Fair was strongly impressed by the educational possibilities of the event.

In fact so successful was the experiment that prominent members of the Canadian Bankers' Association, who witnessed the results and were quick to see the benefits of such a competition to the live stock industry of Western Canada, promptly buttonholed Mr. J. D. McGregor, the President of the Winter Fair. Presently the latter stepped into the Arena and announced to the thousand there that the Bankers' Associa-

calves, and, after examining the lineup, Mr. Leslie Smith of St. Cloud, Minn., who acted as judge of the competition, stated that many of the animals were superior to anything he had ever seen. They were fit to exhibit at the best live stock shows on the continent. The breeds were as follows: Shorthorns, 17; Aberdeen-Angus, 12; Herefords, 7.

The published rules governing the competition required that the competitors feed and care for their respective exhibits for at least six months before the date of the fair, and each entry had to be accompanied by a certificate from parent or guardian



THE TWENTY PRIZE-WINNING CALVES IN THE BOYS' CALF-FEEDING COMPETITION

tion would donate \$1,000 for a calf competition for grade steers or heifers calved in 1914, to be held in 1915, and to be open to all boys under seventeen years of age.

THE SECOND COMPETITION

This second boys' calf-feeding competition has recently been held at Brandon and has more than justified the expectations of its sponsors. The thousand dollars was divided into twenty cash prizes, varying from \$100 first prize, to \$25 for twentieth place. Thirty-six boys, from six to sixteen years of age, entered for the competition with well-finished

that the conditions had been strictly carried out.

Of such uniform excellence were the exhibits of the unsuccessful contestants that the fair board decided to award a consolation prize of \$5 cash to each. This appreciation of the care bestowed by the boys should do much to encourage them to renewed efforts. The provincial government's sympathy for the undertaking was manifested by a grant of \$750 towards defraying the expenses of the competition.

The energetic secretary of the Manitoba Winter Fair, Mr. W. I. Smale, is of the opinion that the number of entries in the boys' calf-

feeding competition this year would have been doubled had the Winter Fair been held as in former years. On account of war conditions, however, it was deemed advisable to cancel the big western event and the fair board's large auditorium was turned over to the Militia Department for the use of the soldiers in training.

A sale of pure-bred bulls was arranged, however, to take place at the time of the calf-feeding competition and every animal brought in by the farmers of the province was sold at a fair price. Uncertainty about the

and in this connection the value of the Manitoba Winter Fair's calf competitions will be readily conceded. The effect of these competitions has been proved already to be far reaching. The boys show marked interest in what is to them a big event in which they can take a personal interest. They discuss with pride the things they have learned in preparing for the contest and in many cases can hand out more sound sense about feeding cattle than the average farmer. These boys are interested now and have a better idea of what farming really means.



FIRST AND SECOND PRIZE-WINNERS IN BOYS' CALF-FEEDING COMPETITION

fair undoubtedly caused many prospective competitors in the calf competition to abandon their fitting of animals, while others from far-distant points hesitated to proceed, owing to the expense of shipping a single animal instead of the several exhibits which ordinarily they would have contributed had the fair been held as usual.

EFFECT OF THE SYSTEM

The problem of making farm life more attractive to the younger generation is everywhere recognized

The profession of agriculture assumes a new perspective to them and they can see that there is plenty of room to develop every talent with which they have been endowed. It only remains for the parents to do their part and the farm boys of Western Canada will surprise them by what they can accomplish.

It will be remembered that to Manitoba belongs the great honour of capturing the sweepstakes, twice in succession, for the finest steers on the continent at the famous International Live Stock Show, held annually

in Chicago. Western Canada has the feeds and the conditions necessary for producing championship live stock products, and there is no

market for his high grade calves, and enables his boys to become expert feeders of baby beeves while going to school. Slaughtering of calves will be greatly diminished and altogether the results will be of general benefit.

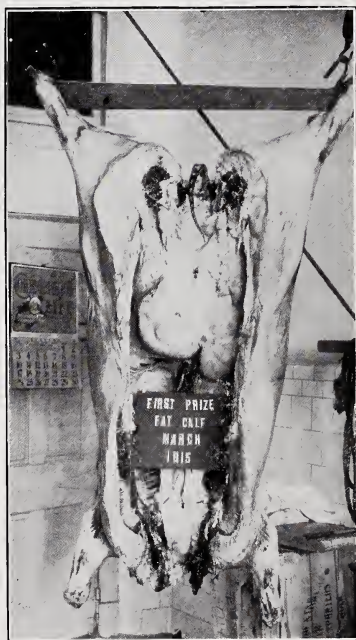
The initial efforts of the Brandon Fair Board in boys' calf competitions have been a decided success and the competitions have only commenced. They will be repeated in 1916, when there seems no reason to doubt that the entry list will be greatly augmented. The Canadian Bankers' Association is in hearty sympathy with this movement and can be depended upon to render generous financial assistance.



BACK VIEW OF CARCASS OF FIRST PRIZE FAT CALF

question that these calf-feeding competitions for the boys will do much to awaken everyone to the wonderful possibilities of the live stock industry in the West.

The production of baby beef, as Mr. Smale points out, is being advocated in all the States to the south. It commands the highest market price and it means quick returns. The production of baby beef gives the farmer an opportunity of converting his feed crop into the very best class of beef, secures a home



FRONT VIEW OF CARCASS OF FIRST PRIZE FAT CALF

SASKATCHEWAN

DUTIES OF DISTRICT REPRESENTATIVES

IN defining the duties of District Representatives of the Department of Agriculture, it is decreed that they shall be permanent outside officials, not attached to any branch and reporting to the Deputy Minister. Each representative is to have permanent headquarters in a centrally located town, equipped with agricultural publications, and is to be in his office every week-end, if possible. He is instructed to further the agricultural interests of his district by:

(a) Encouraging and demonstrating better methods of production;

(b) Promoting greater diversity of production;

(c) Assisting to secure stable markets and profitable prices for the products of the district;

(d) Helping to organize (where advisable, and after consulting the Department) agricultural societies, co-operative associations and creameries, and other institutions to promote agricultural betterment;

(e) Doing what can be done to improve the conditions of rural life, such as by promoting tree-planting, farmstead planning and ornamentation, road dragging, rural mail delivery, rural telephones, etc.;

(f) Interesting young people in agriculture and its possibilities and encouraging likely young men and women to attend short courses in agriculture and domestic science and, where possible, the college of agriculture.

Four of these representatives have been appointed, whose names and headquarters are as follows:—

T. L. Guild, Shaunavon; J. G. Raynor, Battleford; W. Betts, Rose-town; J. L. Brown, Swift Current.

AGRICULTURAL SECRETARIES

BY A. F. MANTLE, DEPUTY MINISTER OF AGRICULTURE

MOST readers of THE GAZETTE are familiar to some extent with the District Representative work that has been carried on to an ever-increasing extent in Ontario during recent years. I believe that the Ontario Department of Agriculture now has a representative, with from one to three assistants in the summer time, and a district office, in at least forty of the counties of Ontario, and spends something like \$160,000 a year in the maintenance of this very effective form of service. Through the aid of funds made available under a recent United States statute, also, County Agents are being placed in an ever-increasing number of counties in all those States of the Union that are

most progressive from an agricultural point of view. These well-trained men with local headquarters, local atmosphere and a personal knowledge of local conditions are found to be very effective agents in bettering agricultural conditions.

In Saskatchewan, however, we have no counties. Our unit of local self-government is the rural municipality, which is only nine townships in extent as a rule, and of which in consequence there are already 300 in the province. It is obviously impossible, for lack both of trained men and money, for the provincial Government to place a district representative in each rural municipality in the province. Yet there is plenty of work within the

boundaries of any one rural municipality in this new sparsely settled province for the energies of a good man.

The noxious weeds problem and The Noxious Weeds' Act alike require that a rural municipality appoint one or more weed inspectors to deal with this question. Our plan is to encourage rural municipal councils to appoint a successful and progressive man (either local or from outside) to promote better farming in their municipality throughout the summer months, or even throughout the year if possible, instead of merely appointing a kind of police officer to enforce the policy of destroying weeds. Weeds are a by-product of poor farming. If the farming can be improved the weeds will be taken care of and the only need for a weed inspector will be to look after the weeds on abandoned lands, road allowances and farms held by absentee owners.

In 1914, some 55 rural municipalities, in response to our suggestion, appointed an agricultural secretary instead of a weed inspector—the secretary, of course, having all the powers of a weed inspector, but having in addition a great many other duties calculated to improve the farming methods and better rural conditions in his district. These secretaries were appointed for terms varying from three to twelve months. The aggregate amount paid by these 55 councils to these men was \$46,000. Perhaps forty of these fifty-five secretaries are of the type that we wished to see appointed, and these forty did good work during the past summer. It is not yet certain how many of these fifty-five councils will adopt it. No doubt in municipalities where a poor man was appointed and did not make good, and in municipalities in which crops were almost a total failure, or were very poor, no secretary will be appointed this year. On the other hand some municipalities in which crops were normal and which border

on municipalities in which good live secretaries worked throughout 1914, have appointed a secretary for 1915.

The department throughout 1914 kept five field representatives at work over the province, meeting these agricultural secretaries, and the weed inspectors of other municipalities, and helping them in what ways they could.

It is not the purpose of the Saskatchewan government to saddle the rural municipalities by means of this agricultural secretary plan with all the work and expense which the Ontario provincial government, with the aid of the Dominion subsidy for agricultural instruction, assumes. We still plan to have our district representatives and have recently appointed the first four. What I wish to point out is, that our system of local self-government with its very large number of comparatively small units, does not as it stands lend itself to the co-operation between municipal and provincial authorities that the county system in Ontario, and in the States of the Union, makes possible. Our districts will have to be formed for the time being without much reference to municipal boundaries and our district representatives will be officers of the provincial government, all of whose salary and expenses will be borne by the provincial government with the aid of the Dominion subsidy for agricultural instruction. In Ontario some part of the expenses of the district representative's office are borne by the county authorities. We are suggesting to our municipal authorities that for the present, until more men qualified for district representative work are available, instead of co-operating with us in bearing part of the expenses of a district representative's office, they do themselves select a local man with less training who will be their own officer (agricultural secretary) and work entirely within their own municipality and will be paid by them and therefore be responsible to them,

although directed and assisted to some extent by this department.

The plan is not to be regarded as a permanent solution of this phase of the problem of agricultural instruction. It will probably merely serve to tide us over in some measure until such time as a steady supply of

trained and suitable men, and machinery, are available, whereby some larger unit than a rural municipality can co-operate with the department in maintaining a competent, qualified district representative throughout the year.

ALBERTA

NEW APPOINTMENTS IN THE DEPARTMENT OF AGRICULTURE

BY order-in-council of April 29th the Alberta Government took a definite step toward the establishment of a college of agriculture which will be a part of the University of Alberta.

Professor E. A. Howes, B.S.A., principal of the school of Agriculture at Vermilion, is appointed dean of the faculty of agriculture. Mr. George Harcourt, B.S.A., Deputy Minister of Agriculture, is appointed assistant to the dean.

In the agricultural department of the University only advanced work will be taught, beginning with the

third year. The board of Agricultural education will fix the course of study in both schools of agriculture and the university, but it has been settled that to become eligible for entry to the latter, students must have taken the two-year course in one of the schools of agriculture. For the opening of the university there are in readiness sixty-seven graduates of these schools.

Mr. H. A. Craig, B.S.A., superintendent of demonstration farms, is appointed Deputy Minister of Agriculture. Mr. Sydney Carlyle, assistant to Mr. Craig, is to be superintendent of demonstration farms.

TRADE ENCOURAGEMENT OF AGRICULTURE

A series of twenty lectures on agricultural subjects, under the direction of Hon. Duncan Marshall, Minister of Agriculture for Alberta, was given in the Board of Trade rooms, Calgary, between February 8th and February 20th. The Minister and nine lecturers from the provincial agricultural schools and demonstration farms took part, their subjects including dairy cattle,

horses, beef cattle, poultry, sheep enterprises, mutton breeds and their management, grading up a dairy herd, foodstuffs available to the Alberta poultryman, hog production, cutting up and curing of pork, soil cultivation, grain judging, dairy productions, and a resumé of the work of the Department of Agriculture. The total attendance was 2,400, an average of 120 for each lecture.

SCHOOLS OF AGRICULTURE AWARDS

Twenty-three men students and 7 women at Olds, 28 men and 8 women at Claresholm and 16 men and 5 women at Vermilion, making

a total of 67 men and 20 women, have been awarded diplomas this year at the Alberta schools of agriculture.

BRITISH COLUMBIA

RECENT AGRICULTURAL LEGISLATION

AT this year's session of the British Columbia legislature the chief measure passed was "The Agricultural Act, 1915," providing for the organization of an agricultural credit commission for the loaning of money at reasonable rates of interest to persons or associations engaged in developing agricultural holdings. The Act is divided into eight parts. The first part constitutes the commission, which is to consist of a superintendent and four directors, the superintendent being also a director. He is to be appointed by the Lieutenant-Governor and is to serve ten years, unless removed upon an address from the Legislative Assembly. Two directors are to be similarly appointed and the other two are to be the Deputy Minister of Finance and the Deputy Minister of Agriculture. A Deputy Superintendent may be appointed by the commission if thought advisable. This part also defines the duties of the commission, the manner of the loans, the methods of payment and repayment and the management of the commission's funds. It is declared lawful for the commission to accept as security for loans first mortgages upon agricultural land in the province that is free from encumbrances. Loans may be made for the following purpose.—

(a) The acquiring of land for agricultural purposes and the satisfaction of encumbrances on land used for such purposes:

(b) The clearing of land, draining, dyking, water-storage, and irrigation-works:

(c) The erection of farm buildings:

(d) The purchase of live and dead stock, machinery, and fertilizers:

(e) Discharging liabilities incurred for the improvement and development of land used for agricultural purposes, and any purpose calculated to increase land productiveness:

(f) And any purpose which in the opinion of the Commission will increase the productiveness of the land in respect of which the loan is proposed:

(g) Carrying out the objects of any association; subject to approval by Order-in-Council as hereinafter provided:

(h) Taking over in whole or in part and with the approval of the Lieutenant-Governor-in-Council, by Order in Council, any existing loan by the Crown in right of the province of British Columbia to any association, or any debentures issued by any association.

No loan can be granted for less than \$250, nor for more than \$10,000 to any borrower other than an association. If the sum required exceeds the latter amount, sanction of an order in council must be obtained. Loans are limited to sixty per cent of the assessed value of the security offered. No loans can be made to members or employees of the commission. Conditions are provided for long-dated loans, extending either to 36 years and 6 months, 30 years or 20 years.

The working capital of the commission is to be raised by the issue of securities and from money appropriated for the purpose by the Legislative Assembly and from such funds as may be derived through the operations of the commission.

THE OPERATIVE ASSOCIATIONS

Part II describes the associations that can take advantage of the provisions of the Act. These include: co-operative farmers' institutes, co-operative women's institutes, fruit-growers' associations, agricultural fair associations, the British Columbia Stock Breeders' Association, the British Columbia Dairymen's Association and the British Columbia Poultryman's Association. Not alone the Legislative Assembly but the council of any municipality may grant money in aid of a duly organized farmers' institute. The Minister is authorized to employ a portion of the legislative grant for the promotion of a central farmers' institute embracing the whole province. Delegates to this

institute can each year appoint an advisory board of six members, two from Vancouver Island, two from the Lower Mainland and two from the Upper Mainland, who shall advise the Minister on matters of agricultural interest. Women's institutes are also provided for.

Part III deals with the scope, operation and organization of co-operative societies. Part IV formulates arrangements for the formation of district and central exchanges. Part V consists of clauses governing associations incorporated under the Act. Part VI provides for the appointment by the Lieutenant Governor-in-Council of inspectors of creameries, also defining their duties. Part VII creates a provincial board of horticulture to advise the Minister on horticultural matters. Part VIII is of a miscellaneous character, dealing with details general to the other parts.

MISCELLANEOUS LEGISLATION

Other acts passed were to amend the Animals Act, to amend the Line Fences Act, to amend the Pound District Act and to amend the Drainage and Dyking Act. The Animals Act was amended by making it un-

lawful for stallions of one year old and upwards to run at large at any time anywhere, except by definition of the Lieutenant-Governor. The Revised Statutes of 1911 limited the operation of the clause to west of the Cascade Mountains and made special provisions regarding stallions two years old and upwards. Bulls over nine months old are restricted in the same way, instead of special provision being made as regards time and locality. The Line Fences Act was amended to apply to extra municipal ditches and watercourses and to make regulations for boundary ditches. The Pound District Act was amended by more definitely defining its application than was the case in the Act of 1912. Any quadruped, except a dog or a cat, running at large in any pound district can now be impounded. The title of the Drainage, Dyking and Irrigation Act of 1913 was amended in title and provision by striking out the word "Irrigation."

GRANTS FOR AGRICULTURE

The following grants on agricultural account are called for in the estimates for the year ending 31st March, 1916:—

Administration and Outside Service (including agricultural products for Departmental exhibition room and miscellaneous expenditure).....	\$20,000.00
Board of Horticulture—expenses of members attending meetings.....	500.00
Compensation to owners of cattle slaughtered for tuberculosis.....	35,000.00
Crop competitions in commercial fruits and vegetables, and garden and vacant lot competitions and demonstrations.....	2,000.00
Demonstration orchards and experimental trees.....	2,000.00
Demonstration spraying.....	1,500.00
Fruit-handling, cold-storage, and pre-cooling investigation work.....	2,000.00
Fruit-packing Schools.....	2,000.00
Government Exhibit, Panama-Pacific Exposition.....	8,000.00
In aid of Agricultural Associations.....	50,000.00
In aid of B.C. Dairymen's Association.....	3,000.00
In aid of B.C. Entomological Society.....	250.00
In aid of B.C. Fruit-growers' Association.....	5,000.00
In aid of B.C. Poultry Association.....	3,000.00
In aid of B.C. Stock-breeders' Association.....	3,000.00
In aid of Flockmasters' Association.....	250.00
In aid of Farmers' Institutes (including educational work).....	22,500.00
In aid of Women's Institutes (including educational work).....	5,000.00
In aid of Poultry Shows.....	4,000.00
Inspection of Nursery-stock, trees, plants, etc.....	20,000.00
Suppression of Diseases affecting fruits, vegetables, plants, etc.....	15,000.00
Suppression of noxious weeds.....	5,000.00
Travelling expenses of officers on duty.....	30,000.00
Total.....	\$239,000.00

HORTICULTURAL INSTRUCTION GIVEN BY THE HORTICULTURAL BRANCH DURING FEBRUARY, 1915

DURING February the activities of the Horticultural Branch were confined to three main lines, namely: pruning, packing and orchard management.

The instruction in pruning was given in schools lasting over a period of five days, which consisted of ten three-hour demonstrations.

During February, pruning schools were held at the following nineteen points:—

North Vancouver (2 schools), Hammond, Gabriola Island, Duncan, Armstrong, Westbank, Canoe, Oyama, Glenmore, Slocan Park, Arrow Park, East Arrow Park, Boswell, Creston, Willow Point, Shirley, Canyon City, Syringa Creek and Erickson.

By March 10th, over sixty applications had been received for pruning schools since the beginning of the year, and more are expected.

The work in apple packing has not been so popular as it was in the past. This, however, does not mean a decrease in interest, but shows

that a sufficient numbers of packers have already been produced to handle our present output. The instruction in packing was also given in schools like the pruning work.

During February apple packing schools were held at the following nine points: Mission City, Abbotsford, Chilliwack (2 schools), Huntington, Vernon, Coldstream, Kelowna, West Summerland and Nelson.

A total of twenty-five schools has been applied for since the beginning of the year.

The general lectures on orchard management were given during the two-week short course held at Kelowna, February 2nd to 13th, inclusive. This short course was the first of its kind held in British Columbia. While the attendance was not as large as at some of the short courses held at other points, it was well maintained throughout the course, showing that the work was of interest to those attending.

Mr. T. J. Harrison, B.S.A., for some time Superintendent of the Experimental Farm at Indian Head, Sask., has been appointed Professor of Field Husbandry at the Manitoba Agricultural College. To succeed him at Indian Head Mr. W. H. Gibson, B.S.A., has been appointed. Mr. Gibson, who is a graduate of Macdonald College, has for some time been Assistant Superintendent at the Experiment Station at Lacombe, Alberta.

Time is hurrying on rapidly to a point where a light will beat strongly on you and all your doings, and the attention of the nation will be concentrated upon your class, and the way in which you discharge your functions in the national life. You all know that half the world is at war. Many of you realize it painfully and intimately through brothers, sons, kin or friends who are actual participants in the fighting. In that sense you need no more reminder that the world is at war, but you do not yet realize that you are more than onlookers, that you are called on to be participants in the struggle, not as combatants, but as part of that other noble army whose business it is in many ways to heal up the wounds of the combatants, to make good the wastage in society, and to ameliorate the evil effects of the war.—From "*The Irish Homestead*".

PART III

Rural Science

RELATIONSHIP OF THE SCHOOL GARDEN TO THE CLASS ROOM

BY H. W. WATSON, DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION, MANITOBA

THE permanency of any nation will depend upon the extent of happy, prosperous, permanent homes that are developed within its borders, and the purpose of each and every subject taught within the public schools should be to produce such.

It is because of its peculiar fitness for such a purpose that school gardening is considered of such importance in the mind of the real, live, up-to-date teacher.

Some teachers, judging from what they attempt in this work, still continue to consider that school gardening is an additional subject to be carried on during the spring months, when work inside becomes rather irksome, even distasteful. These are merely playing with the subject.

All school subjects should be educational and such the garden should be made. The school garden should have at least two great values, either of which will justify its continuance; these are: (1) Aesthetic. (2) Economic.

1. The æsthetic value—School gardening should aim at creating an interest in home beautifying, the principles underlying such, the best materials to use, the methods of planting and caring for such material.

2. The economic value—In the school garden an interest in and a desire should be created for, experimenting with various shrubs, flowers, vegetables and grains. Through



SCHOOL GARDENERS AT WORK AT
HOME

these experiments the pupils learn in a practical manner the principles of scientific horticulture and agriculture.

The children's plots at school must necessarily be small, but, even so, they may produce the above results. They will fail in their true purpose if their counterpart on a larger scale is not carried on by the children in their homes.

Most teachers in Manitoba follow

up the school gardening with competitions in home gardening, and these gardens are regularly visited, inspected and valued throughout the summer.

Some teachers last year required their pupils at home to establish plots in (1) Alfalfa, for fodder and for seed; (2) Three year seed selection, wheat, oats and barley; (3) A three year crop rotation.

This year several hundred boys have been formed into clubs to compete in the growing of "husking corn" in each inspectorate and finally in a provincial competition.

The home gardens are of consider-

able value to the interested teacher. They furnish a splendid opportunity for visiting the homes socially, and reaching the parents as no other excuse would do so successfully. They provide the teacher a means of impressing facts taught at school, correcting errors, suggesting improvements, instilling higher ideals of taste, encouraging original and independent experiments.

The teacher that does not follow up gardens at school with those at home, fails to realize the purpose of the work and loses more than half the real pleasure and profit derived from it.

HOME PROJECTS AS AN ADJUNCT TO AGRICULTURAL INSTRUCTION IN THE SCHOOL

NOVA SCOTIA

BY L. A. DEWOLFE, DIRECTOR ELEMENTARY AGRICULTURAL INSTRUCTION, TRURO, N.S.

HOME projects should include all useful work that requires initiative or intelligent action on the part of the pupils. In the past, home work and school work have been entirely separated. For a long time, parents have been urged to take an interest in the schools. With equal force are teachers now urged to take an interest in the homes.

Until such mutual co-operation exists, not much progress can be made in community education. Possibly the greatest connecting link between the school and the home is the child's home garden. The child is proud to have his teacher come to inspect his garden; and, incidentally, the teacher sees a side of the boy's life that she will never see at school. On her tour of inspection, she meets the mother, with whom she talks over Willie's and Mary's school work and school attitude. The mother enumerates the various outside interests that seem to detract from school work. She also com-

plains of the irresponsible and half-hearted way in which the children perform their various home duties.

Here is where the teacher's chance comes. The mother is worried. The children are not helpful. The teacher explains how, in some schools, credits are given for performing home duties properly. She explains that education means the ability to wash dishes or feed chickens properly fully as much as it means the recitation of historical facts or the solution of artificial problems in arithmetic. Therefore, if the school can give "marks" for the one, it can for the other.

There is little doubt that the mother will give her consent to try the experiment, and will assist the teacher by reporting the "marks" due for home duties.

Because teachers have neglected this side of a child's development, other organizations such as the Boy Scouts and the Camp Fire Girls have come to the rescue. But these do not reach every community. It

is, therefore, necessary that the school meet its responsibility in this matter.

A list of home projects seems superfluous. Everything belonging to a child's development is properly within range of the school. Boys will make gardens, care for chickens, build chicken houses, paint or stain small buildings, keep the lawn neat, feed farm animals, test milk, judge stock, and will be generally useful and helpful. They will do this for their teacher; and she rewards them with the coveted "marks".

Similarly, girls will do all they can to help their mother. The old excuse "I haven't time, for I must

learn my lessons", will have lost its force. Home duties are now on equal footing with the lessons.

Besides activities which assist the farm and home work, such cultural activities as music and painting lessons, active membership in a debating society or other community organization, and taking part in a musical club, can be encouraged by the teacher.

In short, everything that will help the boys and girls to be self-sustaining and will make them useful and agreeable members of society, comes under the head "Home Projects." All that is wanted is THE TEACHER.

NEW BRUNSWICK

BY R. P. STEEVES, M.A., DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

THE value of a school garden as a feature of school ground improvement, the influence of well kept, attractive school grounds in moulding character and cultivating æsthetic taste, the opportunities afforded through these channels of giving instruction and training of a practical objective nature, have been dealt with in former articles. If during the past years careful instruction in the school room has been interwoven with outdoor activities, and related community life problems, if among the various school subjects nature study has been given its proper place, if the school garden has been made to play its part in promoting local knowledge, there will be much information practically obtained by the pupils, that they will be seeking opportunity and place to put to good account at home. Here, home plot work for school children, under the supervision of the teacher, becomes of value.

If the school has done its part wisely and well, the application of its instruction is a natural sequence. At home the child is free to work out

his conceptions of the principles inculcated at school, to do so at a time when he is still in school or in touch with it, so that if he meets difficulties—as he assuredly will—if he finds some things work out differently from what he thought they would, he is yet able to appeal to his instructor and to be guided, encouraged, and helped on the way to success.

As we have said the pupil should be free to work out his home schemes. In accordance with its school connection, however, the supervision of the teacher is important. It is well to encourage pupils to begin the work of preparation of home plots in the fall. If this is done it acts as a stimulus in study, observation and reading during the winter. The connection between education and success, between theory and practice, is thus established.

Teachers should, so far as possible, visit home plots three times a year at least, once in the fall after preparation of soil has been made for winter, once in spring when seed bed has been fully prepared, and again just before close of school term in June.

At these visits careful notes should be made of conditions, and suggestions given linking home work with school effort.

This home plot work is of great value. It dignifies manual labor, it connects the home with the school by a bond of sympathy and direct relation. The school becomes an institution of direct community value, a force in securing larger production and more intelligent industry. Manual labor as a feature connected with school life is exalted and encouraged.

Last year there were but 89 Home Plots worked by children of the public schools in New Brunswick. These were in general of a fairly satisfactory character. As school garden work is in its initial stages here, we are not seeking to promote home plot work to more than a corresponding degree.

The present year as indicated by the requests for seeds received up to date promises to see home plot work in a limited degree extended into most, if not all, of the counties of the province.

It is our policy to have several pupils in each district plant home plots with the same variety of seed. In this way we hope to encourage competition in both cultivation and production and to secure greater interest in school application. Each pupil is required to keep dated records of work performed with descriptions of methods followed and observations made. The neatness, definiteness and completeness with which such records are kept will be items for consideration of value as school work in the fall term. Pupils' records are to be handed to teacher for transmittal to the Director.

From these records received from various parts of the province a tabulated report of yields in crops raised by pupils will be prepared.

Encouragement is being given in establishing clubs in schools. In union there is strength. Each pupil helps all the others. In the multitude of counsel there is wisdom. Pupils too will thus become accustomed to co-operative effort, and under wise guidance will profit by a practical knowledge of its best features.

"The hope of farming in Alberta lies in the achievements of the men and women engaged in it, and those who have had the advantage of both a practical and scientific training in Agriculture should lead their community in an effort to increase the profits and improve the conditions of the people on the land. It is well to keep in mind that farming is no get-rich-quick scheme, but it is the surest, safest means of establishing a home amid surroundings and conditions that make for pleasure, comfort, and good health; and, with a reasonable knowledge of its science, agriculture will become a business and life work of absorbing interest and of achievement large enough to satisfy the most ambitious of men."—*Hon. Duncan Marshall to the students of the Alberta Schools of Agriculture.*

THE PREPARATION AND MOUNTING OF PLANTS AND SEEDS

NEW BRUNSWICK

BY R. P. GORHAM, B.S.A., INSTRUCTOR IN HORTICULTURE AND BIOLOGY

AT present we give instruction at our winter courses under four heads: (1) Weeds of grain crops; (2) Weeds of grass crops; (3) Weeds of cultivated crops; (4) Weeds of pasture lands.

The identification of the weeds and their seeds, and the common methods of control are studied in each case.

For the purpose of identification we make use of dry specimens collected during the summer, in conjunction with the best coloured illustrations of the weeds we can obtain. The dry specimens are mounted in two ways: on 11 x 14 inch sheets of medium weight cardboard, and in 8 x 12 inch Riker mounts. In the latter the specimens are protected by glass and are held tightly in position so that they do not become battered out of recognition or lose essential parts by rough handling, as so frequently occurs in the case of those mounted on cards. The glass covering also allows a close examination of any part with a tripod magnifier without danger of injury by careless hands.

As the Riker mount is somewhat expensive a cheap home-made mount, recommended by Mr. Wm. McIntosh, Curator of the Natural History Museum, St. John, N.B., is being experimented with and promises to give good satisfaction. This is made by tacking together a light frame 8 x 12 inches in size, made of dry pine strips cut $\frac{1}{2}$ x $\frac{1}{4}$ inch. A piece of 8 x 12 inch light straw board is tacked on the back of this. A layer of white sheet wadding or absorbent cotton is

placed in the shallow box thus formed, the dry specimen is arranged on the wadding, and a sheet of 8 x 12 inch window glass pressed firmly down upon specimen and frame. The edges are then bound with a strip of bookbinder's cloth cut wide enough to give a $\frac{1}{4}$ inch lap on the glass and on the cardboard at the back. This goes all round the edge and is fastened with glue, making the case proof against museum parasites and nearly air tight.

Weed seeds are given to the students in as nearly natural condition as possible, i.e., in the pod, capsule or head in which they develop. In this way we think they may be more readily associated with the plant producing them than if given in the threshed and sifted state. Examination of the seed is first made with the tripod magnifier and then with the lowest power of the botanical microscope. Drawings are made of the different seeds, with special attention paid to the features that distinguish one from another, and the possible uses to the plant of such features, e.g., the spines on hawkweed, pappus on thistle, and polished surface on pigweed seeds.

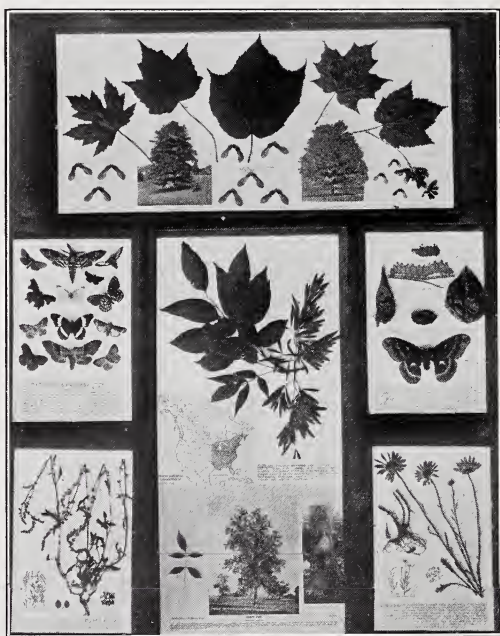
Daily tests in the identification of all seeds already examined, when mixed with seeds of clover, grass and grain, are given to impress the points of difference on the students, and to accustom them by frequent association to recognize certain forms at sight. No special display of weed seeds is made, but one of the Dominion Seed Branch reference collections is kept in the laboratory for general use.

NATURAL HISTORY SOCIETY OF NEW BRUNSWICK

BY WILLIAM MCINTOSH, CURATOR

IN our work here we found it necessary to procure a method of mounting plants and insects which would combine the following points: lightness, strength, absolute protection for the specimen from dust, handling and sudden jars, economy of space, and, last, but by no means least, cheapness. Some of the manufactured mounts met our

under seven cents. The materials used, with their prices, were as follows: $\frac{3}{4}$ inch clear pine board planed on both sides ripped into $\frac{1}{4}$ inch strips, 75 cents; glass 8 x 12, $2\frac{3}{4}$ cents per light by the box; cardboard bottoms 8 x 12, 55 cents per hundred; surgical cotton (the most expensive item), 60 cents per pound in 4 ounce cartons, 8 inches wide;



TABLETS USED BY NATURAL HISTORY SOCIETY OF NEW BRUNSWICK IN MOUNTING PLANTS AND INSECTS

requirements, but, with our limited means, the cost was prohibitive. Upon investigation, we found that they could be made much cheaper by our own staff.

We decided to make our general purpose tablets 8 x 12 inches. These cost, when completed, a fraction

(later we used a cheap cotton for backing and faced the mounts with surgical cotton); bookbinders' leatherette cloth, 40 inches wide, 25 cents per yard; fish glue, brads and tacks, 62 cents. The wooden strips were cut the desired length, the four sides nailed together with one inch

brads, the cardboard bottoms tacked on, the cotton cut and laid in smoothly, and the tablets were ready for the specimens and labels. These were placed on the cotton, covered with the glass and bound with leatherette cloth cut into strips two inches wide.

For the majority of plant specimens we found the $\frac{3}{4}$ inch tablet unnecessarily deep so we split the wooden strips in half and bound the cases with $1\frac{1}{4}$ inch binding. Our weed collection includes fifty of the most common weeds of New Brunswick. Each tablet contains a specimen of the plant in flower, a small cluster of seeds, a picture of the weed and an enlarged drawing of the seed, both coloured. Many of these pictures were cut from Bulletin No. S. 6, Dominion Agricultural Department, and coloured by hand. They were very effective. The label gives the common and scientific names, duration, method of eradication and other necessary information.

The insect series includes the insect orders, insects attacking field and garden crops, fruits and animals, household pests, beneficial insects, etc. In this collection are about sixty tablets nearly all of which are 8 x 12 inches.

Tablets of other sizes were also

made, the smallest being 6 x 8 inches and the largest 12 x 16 and 12 x 24, care being taken to make all sizes in multiples of eight for the sake of uniformity in exhibiting. In the upper part of the accompanying photograph is a tablet of the largest size in which are shown leaves of the five species of maples found in New Brunswick. These tablets are loaned to schools accompanied with a lesson. A series of such tablets would make a useful and effective decoration for any school. A more complete method of preparing a tree collection is shown in the central tablet. Here, we have the leaves and fruit of the tree, a map showing distribution, a picture of the tree and a label. If the bark and a small section of sapling were also shown the result would be a very complete exhibit. In our museum, each tablet is accompanied by cross and longitudinal sections of the wood.

We have found these tablets very satisfactory. Part of our insect and weed collections has travelled hundreds of miles in the government agricultural train, been expressed to distant points on several occasions, and is constantly being loaned to schools. The specimens are in as good a condition as when they were mounted.

ONTARIO

BY W. H. WRIGHT, B.S.A., DEMONSTRATOR DEPARTMENT OF BOTANY, AGRICULTURAL COLLEGE

THOSE who are connected with the educational side of agriculture will in all probability find it most useful to have, for class work and exhibition purposes, mounted specimens of the weeds and plants affected with the diseases of their locality. In this article are outlined simple methods of obtaining these.

COLLECTING WEEDS

When collecting specimens for

mounting, typical representatives of the plants required should be collected. The plant should be removed from the soil with as much as possible of the root system attached, and should be placed in a covered basket, or better still a regular botanical vasculum (Fig. 1), without being crushed or bent more than is necessary. A useful sized vasculum is one about 20 inches long by 9 inches wide, with opening nearly the entire length of one side. If the plants are

sprinkled with water and kept in a closed vasculum they may be left for some hours without being put into the press. Plants with flowers very far advanced should not be chosen, as the petals are liable to drop before being put into the press. Where possible, specimens of the fruit of each plant should be procured.

Pressing and drying.—Heavy blotting paper or any quick absorbent paper, sheets of newspaper, or some cheap soft paper, pressing boards and weights are the requirements for pressing and drying plants. A useful size for the sheets of blotting paper and pressing boards is 14 inches by 20 inches.

not be too heavy at first, particularly if the plants are succulent, as this causes a crushing of leaves and stems, sometimes resulting in blackening. The papers in the press should be changed once or twice during every 24 hours according to the succulency of the plants. When the paper is changed the first time, any further smoothing out or arranging of the specimen should be done. The weights should be gradually increased until the plants are dry. If the drying papers are not changed the plants will become black and discoloured and often mouldy. If the plant has a woody stem, it is generally wise to remove and press the flowers separately. The papers

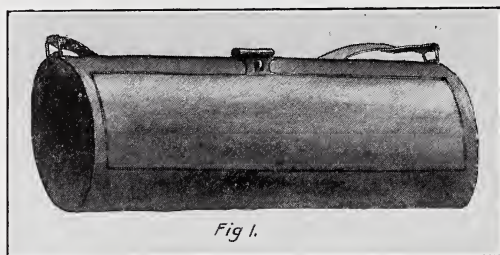


Fig 1.
A BOTANICAL VASCULUM USED FOR COLLECTING PLANTS

The method of procedure is as follows: First, place a couple of sheets of blotting paper on the table, and then a sheet of newspaper; next, take a specimen and lay it flat on the newspaper, spreading the leaves out smooth and arranging the flower to the best advantage. If the root is too big to press conveniently, it may be sliced lengthways to a suitable thickness. Over the specimen is laid another sheet of newspaper and some more blotting paper. This may be repeated till the pile is four or five layers thick. On top of the last sheet of blotting paper, place the pressing board and weights. If nothing better can be obtained, bricks answer the purpose of weights very well. The weights should

may be dried and used repeatedly.

Mounting.—A stiff white or buff mounting cardboard, at least one-eighth of an inch thick, should be chosen. A convenient size for the mount is 12 inches by 17 inches. The specimen should then be carefully arranged and fastened to the mount by means of strips of strong adhesive paper. These strips should be numerous enough and strong enough to hold the specimen firmly to the card without any fear of their being broken. Judgment must be used as to the length and thickness of these strips, as the plants will differ considerably as to size and weight. If the mounts are to be handled much, considerable adhesive paper will be required. Each strip of

paper should be firmly pressed to the part of the plant over which it passes by means of a pair of forceps (Fig. 2). To protect the mount, it is well to cover it with thin transparent celluloid. This is better than glass, as it is light and not easily cracked or broken. The celluloid may be fastened to the mount by passe-partout binding. Fasten the short sides first, allowing the strip to run the full length of the mount. When

tific name, common name and habitat of the plant mounted, also the locality in which it was found, the name of the collector, date and note regarding injury, etc., should be neatly pasted on the left hand corner of the mount equi-distant from the edges.

MOUNTING SPECIMENS SHOWING FUNGOUS DISEASES

Diseased leaves should be pressed

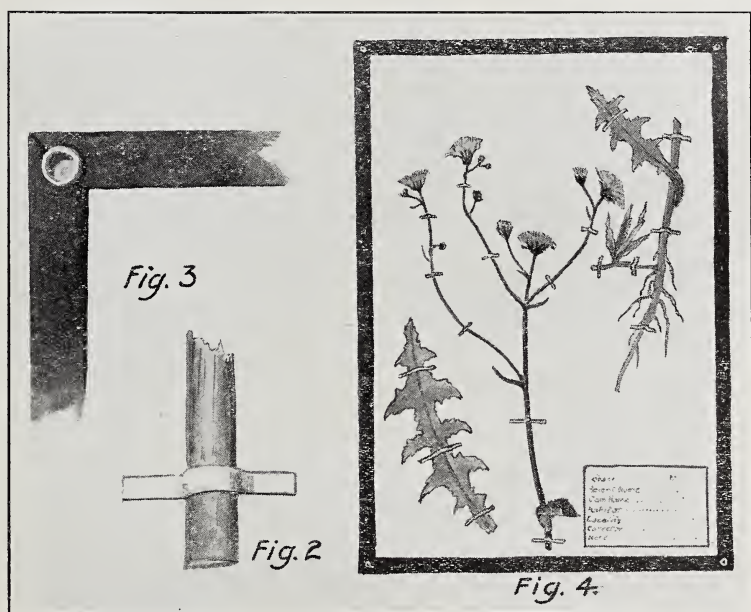


FIG. 2. ADHESIVE PAPER PRESSED FIRMLY TO PLANT
 FIG. 3. EYELETS USED IN CORNERS OF MOUNT
 FIG. 4. A FINISHED MOUNT

attaching the long sides, the corners should be mitred for the sake of neatness. Eyelets can be obtained from any good stationery store, and are excellent in preserving the corners from injury if the mount is to be hung on the wall.

A label giving the family, scien-

and dried in the manner already described for weeds. Diseased fruits, such as plums affected with "Pockets", or beans attacked by anthracnose, should be carefully dried before mounting. It is often wise to dip such specimens in formalin before drying to prevent



A COMPLETE FUNGOUS DISEASE MOUNT

moulding. Very fleshy parts of plants which would be destroyed by drying cannot be mounted, but should be preserved in four per cent formalin. Mounts of fungous diseases, as a rule, need not be very large and should be covered with glass. A handy size is five inches by seven inches. Old photographer's plates, when washed free of the film, furnish excellent glass for such work. The mounting card need not be so heavy as that used in making the weed mounts; about one-eighteenth of an inch in thickness will answer the purpose very well. Many specimens showing fungous diseases are quite thick, so the sides of the mount must be built up somewhat like a picture frame to prevent crushing the specimen with the glass. To do this it will be necessary to have 5 by 7 cards with the centre measuring 4 by 6 inches cut out. These can be glued one above the other until the desired thickness for the frame has been obtained. The frame is then glued to the mount and the glass attached by means of linen passe-partout binding.

MANITOBA

BY H. W. WATSON, DEPARTMENT OF EDUCATION, WINNIPEG

THE plan I advocate in mounting a display of plants is as follows:—

Use heavy white cardboard No. 5, 11 x 14 inches; this is obtained by cutting the stock size 22 x 28 inches into four pieces. These large sheets cost \$6 to \$7 per hundred.

Some teachers have the pupils press and dry the plants between blotting paper before pasting on to the mount. I have found the following plan more expeditious and better

in many ways:—Wash the green plant well, trim off long bulky portions, dry well and fasten immediately upon the mount.

Fastening may be done by sewing with white thread, or with strips of adhesive tape for the stems, and photo paste for the larger leaves.

Soaking the plants in solutions of blue stone for a few minutes before mounting will assist most plants in retaining their natural green colour. Pile the mounted plants upon each

other with blotters between, increasing the weight as the plants become dry. The plants are afterwards labelled with the necessary information neatly in the lower right corner.

Seeds of any nature may be mounted on the same kind of cardboard, in small one-dram vials with screw tops. These vials may be held on the mount with narrow elastic, passed through the mount and over each vial in turn.

Weed seeds may be mounted for closer inspection on the same kind of mount also by punching half-inch holes in the cardboard at regular intervals, and pasting another thinner sheet over the back of the mount. Moisten the hole with mucilage and drop in a few seeds. When the mount has been filled, it should be covered with a pane of glass and the whole bound with passe-partout.

For the mounting of insects, our students obtain the regulation case about two inches deep, provided with a closely fitting lid or glass

cover; these cost about 50 cents each.

A good mount for galls or life histories of insects is made of a shallow pasteboard box about one inch deep. Lay a thick bedding of absorbent cotton on the bottom and place the specimens upon this.



STUDENTS' COLLECTIONS OF MOUNTED PLANTS

Cover the box closely with a glass lid.

These methods of mounting are quite simple, yet if done carefully require sufficient skill for the average public school pupil.

MANITOBA AGRICULTURAL COLLEGE

BY V. W. JACKSON, B.A., PROFESSOR OF BOTANY

IN addition to our college herbarium, which contains some thousand specimens of our Western weeds, we are making special effort to display weeds, plants and seeds in other ways, as I find the ordinary herbarium specimen to be very short lived when placed on exhibition.

We use the Riker mounts for displaying thick specimens of roots and dry fruits and also for the more delicate wax models, which we have made of certain fruits and plants.

I think I originated the punched card system of displaying weed seeds at the Ontario Agricultural College in 1903, and have still the original frame, containing 140 weed seeds, arranged in family rows. These and smaller frames have been very useful

for teaching purposes, the larger one being for reference; and the smaller frames, of which we have fifty, used for class purposes. But I desired a permanent enlargement of weed seeds that would permit of directly observing the characters of the seeds and the difference between them. For this purpose we have made papier mache models 40 x 40 times the actual size of the seed. These are accurately coloured and mounted on frames, and I have found them the most valuable expedient I have tried, for showing how to divide our weed seeds.

These frames were taken out on the Better Farming train last summer, and the farmers could observe the shapes of the seeds and the difference between the Annual and Perennial Sow

Thistle, etc., the length of the ear. In class, the students can observe the details of seed structure without making any black-board drawings. Of course, we still distribute the seed for examination with the microscope, but the enlarged and accurate model calls their attention to the detail which they are to co-operate by direct observation.

Owing to the nature of some waxy looking seeds, we find it necessary to make these in wax, but the papier mache models were cheaper and more durable, and are the models which could most readily be made by an amateur. It is very easily handled and moulded as readily as plastacine, making it easy to get the exact form and detail of the seed, and it hardens in a few hours, as hard as bone, when it may be chiseled and coloured,

as desired, and even fastened with screws from the back on to a frame. I can see great use for this material in making permanent and enlarged models of seeds and fruits.

Various styles of seed vials are used, the larger ones for stock supply, and the smaller ones mounted in frames and arranged in families for class distribution.

For wall displaying of grasses and weeds I am using transom window sash, as frames, and placing small sheaves of grass or card mounts of weeds in these frames, which are hinged on the wall and permit of replacing the specimens from time to time. I have found that grasses are more readily recognized by the student, when in small bunches or sheaves, than by isolated specimens on cards.

SASKATCHEWAN

BY T. N. WILLING, ASSISTANT PROFESSOR OF NATURAL HISTORY, UNIVERSITY OF SASKATCHEWAN

TO really know a species of wild flower we must find it in its natural environment, where the eye can apprehend its colour scheme and become familiar with its variations of form; where also the senses of touch, taste and smell may contribute to our knowledge of its individuality, and where we may learn something of its place in plant society and its relations to its neighbours. It is, however, not always possible for a class of students to enjoy such opportunity, but wild flowers may be utilized for the beautification of school grounds and plots of weeds may be grown or found in places convenient of access for summer classes, or even in boxes or pots indoors for winter use.

It has been found that nothing in the way of a weed display has attracted so much interest as a collection of the noxious and poisonous weeds growing in pots.

Along with these, exhibits of germinating seeds may be made by using smooth glass tumblers or jars in which white blotting paper is first placed next the glass, and then a saw-dust or sand filling to hold moisture. The seed should be put between the paper and the glass near enough to the top for the young plants to force their way out, and display their first leaves. Study of such exhibits should be of great value to weed inspectors and others to whom a knowledge of the appearance of weeds in their earliest stages is necessary. A similar plan may be adopted to show the root system of a weed by having a sheet of glass arranged inside a removable side of the box in which the plant has been grown.

Next in value to living plants for educational displays are dried specimens well prepared, and supplemented by coloured pictures.

Pressed plants attached to paper or cards are soon destroyed by exposure to the varying conditions of the atmosphere if not protected by glass, and even then they lose colour if exposed continually to bright light. The several forms of Riker mounts, which are shallow boxes filled with cotton batting and covered



RIKER MOUNTS USED FOR WEEDS, WEED SEEDS AND INSECTS

with glass, are very well suited to the display of dried specimens, as the cotton adapts itself to the various thicknesses of leaf and stem. These are also excellent for showing the seeds of plants to better advantage for study than in small vials as usually displayed.

PREPARATION FOR MOUNTING

It may not be out of place here to give some hints on the collection and preparation of plants for mounting. A press may be made of slats as in the illustration, or boards may be used with a couple of straps about them. Carry the press to the field with you on a fine day after the dew is gone. In the press have a supply of old newspapers, some sheets of blotting paper, and also sheets of cotton batting of similar size. Choose a suitable specimen, which may be a whole plant or only a part or parts of one, and place it in a folded sheet of the newspaper on one

board of your press, arranging the flowers and leaves as best you can, and over this place a sheet of cotton, then a sheet of blotting paper, another newspaper containing a specimen. In this way fill your press and draw the straps tightly about it. To take up the slackness of the strap, slip a lath under them and turn it on edge. On your return home you may open the press and finding the plants wilted may rearrange some of the leaves, but if any of your specimens be composite flowers with many rays, you should avoid disturbing them, as the rays will curl if you lift the paper to look at them and you cannot get them straight again. After plants have been in the press for half a day or so,



UPPER LEFT CORNER—HERBARIUM SPECIES
UPPER RIGHT CORNER—RIKER MOUNT
LOWER LEFT CORNER—PLANT PRESS
LOWER RIGHT CORNER—FUNGI JARS

take out the damp cotton and blotting paper and replace it with dry. Make such change at intervals of a day or two until the specimens are dry. The length of time

required for drying plants depends on their bulk and the amount of moisture they may contain. In moist climates or in damp weather, specimens may be dried rapidly by inserting corrugated paper between the drying sheets and suspending the press edgewise over a lamp or fire. To retain as much of the natural colour as possible, plants should be dried quickly. A perfect botanical specimen should show all parts of the plants; including flowers and fruit. It is often desirable to

the corner of the sheet and your exhibit is ready for use in a demonstration herbarium.

Herbarium specimens are sometimes attacked by insects and to avoid loss in large collections a poisonous solution of corrosive sublimate, $1\frac{1}{2}$ drams, and carbolic acid $1\frac{1}{2}$ drams in 12 ounces of alcohol, is sprayed or brushed over the dried specimen. When specimens are placed in Riker mounts there is little chance of injury from insects if precautions are taken to avoid the



THE DEMONSTRATION HERBARIUM IN USE

reduce the thickness of a stem by whittling one side of it, and it may also be desirable to cut away some of the leaves to display to better advantage the remainder.

The usual size of sheet for mounting herbarium specimens is $11\frac{1}{2}$ x $16\frac{1}{2}$ inches and on these the dry plants may be fastened by small strips of adhesive tape. The name of the weed, the locality where found, and the date, should be placed on

use of plants already infested.

Mushrooms and similar fungi may be satisfactorily preserved in jars containing a solution of 10 per cent of formalin in water. They should be perfectly fresh when placed in the liquid. The more woody forms, such as shelf fungi, can be kept dry if first placed in a closed jar with a little bi-sulphide of carbon to kill such insects as are frequently found inhabiting fungi.

ALBERTA

SCHOOL OF AGRICULTURE

BY J. C. HOOPER, CLARESHOLM

FROM my experience of several years in preparing weeds and other plant specimens for demonstration in schools and colleges where the natural colour of the flowers and leaves is desired, I have found that the alum-bath method is best. The alum-bath, in which the plants are immersed for a few minutes, brings to a sudden termination the life processes and at the same time fixes the plant-cells and their contents in as nearly the living condition as possible. This method has been used at several summer schools for public school teachers, and has been found very satisfactory. Last summer this method was demonstrated at the summer-school held at the University of Alberta and met with the same general approval.

In order to carry on this method of preparing plants the following things are needed:

- (1) A pound of powdered ordinary alum.
- (2) A can of photographer's paste. Corn-starch paste will do very well, but must be applied while hot.
- (3) Passe-partout of several colours.
- (4) Pieces of white cardboard 11 inches by 16.5 inches.
- (5) Pieces of cotton cloth.
- (6) Several pieces of white blotting paper, 12 inches by 14 inches.
- (7) A press consisting of two boards, each 14 inches by 12 inches, by one inch, and a number of bricks, which may be used as a weight. Bricks are most satisfactory as one can vary the weight very easily when necessary.

The teacher may have the fresh plants collected which he or she wishes to prepare, or the pupils may be taken for a nature study trip, and each pupil be asked to select the plant which he or she desires to prepare. As soon as each plant is secured, it should be wrapped in a newspaper, and at once taken to the school; then removed from the

wrappings and all earth or dirt that may be adhering washed off. Following this the plant should be totally immersed in the alum-bath prepared by dissolving powdered alum in water, using two ounces of alum to one gallon of water. They should be immersed for a period of from three to five minutes, depend-



MOUNTED SAMPLE OF LIGHT-GREEN
HEDGE NETTLE (*STRACHYS CORDATA*)

ing on the nature of each plant. A hard woody plant, such as the golden-rod, should be immersed for the full time, but a soft delicate plant, such as the violet, should not be immersed for more than three minutes.

When each pupil removes his or her plant from the alum-bath, it should be laid upon a piece of blotting paper or a folded newspaper, and, by gently patting it with absorbent

cotton, the excess of moisture may be removed. The plant is now ready to be permanently mounted on a piece of white cardboard 11 x 16.5 inches.



MOUNTED SAMPLE OF CANADIAN GOLDEN-ROD (*SOLIDAGO CANADENSIS*)

Cut narrow strips of passe-partout $\frac{1}{8} \times 1$ inch, or longer if necessary, of a colour to match the plant and attach the plant to the cardboard by fastening the moistened strip of passe-partout across the stem of the plant as near the root as possible. If the stem of the plant does not lie evenly, one or more strips may be necessary.

The pupil is now ready to exercise his or her artistic ability by the most natural arrangement of the leaves and flowers, so as to secure the best effect in showing the whole plant. Suppose it is the upper part of a perennial sow-thistle plant, which is to be mounted: place the lowest right-hand leaf in the exact position on the cardboard you wish it to occupy and gauge with the eye about

the space it will occupy; then with the tip of the second finger apply the photographer's paste to the paper, holding the leaf to be mounted raised above the paper with the other hand. When the paste has been properly spread over the space, press the leaf down with the left hand and gently rub it flat with the fore-finger. When it has been neatly pressed into place, lay a sheet of newspaper over the leaf and hold it down with the palm of the hand, using considerable pressure. After a moment or two take the newspaper away and with a cotton cloth rub off the excess paste which will have exuded from under the edges of the leaf. Proceed in the same manner with the left-hand leaf, and so on until all the leaves have been ad-



MOUNTED SAMPLE OF TALL LUNGWORT (*MERTENSIA PANICULATA*)

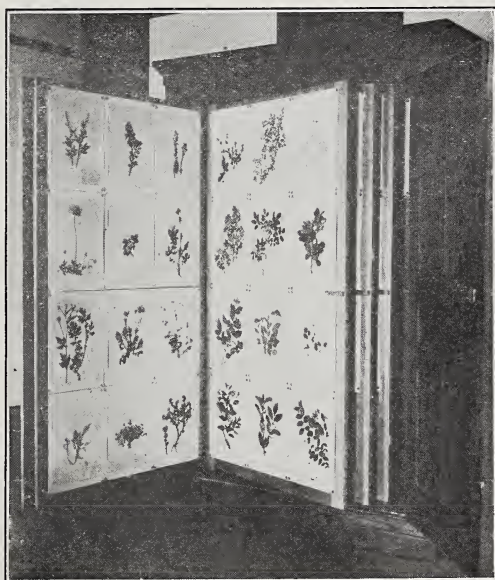
hered to the cardboard, leaving the flower-head or heads until the last. Place each flower head in its natural position, note the space each occupies on the cardboard and smear paste on each spot. Then press the flower-

heads down, rub off all excess paste from the whole plant, place the prepared specimen on a table. A label describing the plant specimen should be adhered with paste to the lower right hand corner of the cardboard. The label should be about 4 x 2.5 inches and should state the following facts:—Order, scientific name, common name, habitat, locality, date of collection, collector's name.

After a few minutes, when the

The plants are left in the press until the following day, when all the newspapers should be removed and dry ones put in their places. The newspapers should be changed on three or four consecutive days and then the plants may be put away in the herbarium or cabinet.

Each pupil will be able with the guidance of the teacher to procure and mount the plant specimen as outlined in about one hour and a



DISPLAY CABINET FOR MOUNTED SPECIMENS OF
WEEDS AND OTHER PLANTS

paste is so set that it will not adhere to any foreign substance, place a folded newspaper over the whole mount. Each pupil of the class should do likewise and then the prepared specimens should be placed in a pile one above the other, with an inch board 12 x 14 inches at the bottom and a similar one at the top. A number of bricks acting as a weight should now be placed on the top board.

half. Hence in one period with a class of forty pupils at least forty prepared specimens may be obtained. If a teacher has a few such periods in the spring and fall of each year, then in the course of a few years the school will be provided with a large number of plant-specimens which I am sure will be a credit to the school.

After the plant specimens have been obtained there should be some method of displaying them without

exposing them to sunlight for any length of time, because sunlight tends to bleach out the natural colours of the flowers and leaves. The method of displaying should also prevent unnecessary handling as the cards should be kept as clean as possible, and in handling plant-specimens there is always danger of their falling and becoming soiled or broken. Taking these points into consideration, I think the best method of displaying the plant specimens is to have them attached by thumb-tacks to wooden frames of a cabinet, the frames resembling the leaves of a book. This cabinet can be so constructed as to accommodate about a dozen frames, which may be opened up like the leaves of a book, and so that each frame of the cabinet may be taken out if necessary. The cabinet may be about eight or nine feet

high and six or seven feet wide, provided with two doors meeting in the centre of the cabinet.

Within the cabinet the plant specimens should be arranged according to the families to which they belong and the plants of each family should be alphabetically arranged according to the first letter of the genus to which they belong. This will make it easy to find a certain plant at any time. If the number of plant specimens is large it will be necessary to have perhaps two or three such cabinets. The Superintendent of Weed-inspectors for the province of Alberta has in his office three such cabinets, where the weeds and other common plant specimens are displayed. These have proved very satisfactory and the plants are still in perfect condition.

NORMAL SCHOOL SCIENCE DEPARTMENT

BY J. R. TUCK, M.A., CAMROSE, ALTA.

IT can scarcely be said that anything like a generally uniform system of managing plant and other collections has been adopted throughout the province. Obviously there are difficulties, in many parts, in the way of building up exhibits even for ordinary reference, when so many schools are just newly opened and so many teachers stay in the same school so short a time. Pupils, however, are encouraged by many to make collections for themselves as well as to add to a common school collection.

In the schools here attempt is made to observe good botanical practice in so far as this can be managed successfully by public school pupils. The collections made to the greatest extent are: plants common to the locality with special reference to noxious weeds in the senior grade; leaves and twigs of trees; weed seeds; seeds showing dispersal structure, and insects.

The plants to be preserved are chosen and arranged so that when

pressed they will show as completely as possible all the characteristics of that species and hence flower, roots, stem and leaves are needed, entire or in part. They are pressed between boards or slats on which is put a weight great enough to flatten the specimen well. Each plant is placed between several layers of absorbent paper such as blotters or old newspaper to absorb the juices squeezed out, and a considerable number can be pressed at the same time. Care needs to be taken to put them in a place where they will dry quickly and, to assist in this, the absorbent paper should be changed two or three times during the first week. When flattened and dried well (usually in a week or ten days if everything is favourable), the specimen is mounted on regulation-sized paper. One fairly stout sheet of white paper $11\frac{1}{2} \times 16\frac{1}{2}$ inches is used for each specimen, which is held in place by several narrow straps of adhesive tape, such as passe-partout, placed across the stem. A label

showing the name of the plant, the name of the collector, date, etc., is attached by one edge to the lower right-hand corner of the sheet. Each specimen is exhibited by pinning to a bulletin board or a substitute for this. When not being exhibited all the specimens of a family are placed together in a simple folder made of stout paper, such as wrapping paper, folded over once. The sheets are placed loose in this and kept in cupboards or drawers.

The two commonest ways of keeping and displaying weed seeds are:

1. By putting each kind, when ripe, in a small vial which is labelled and mounted on a cardboard. They

are held there by elastic string, cord, or narrow ribbon, very much after the fashion adopted for keeping buttons on cards.

2. By causing the seed to adhere to a cardboard with the aid of mucilage, etc. So that these will not be rubbed off so readily they are guarded by a disc of cardboard—square or round.

Seeds showing dispersal structures are best put in small vials. All should be ripe and dry, or else they will spoil. These cardboards can readily be pinned to bulletin boards. In many places prizes are offered at fall and summer exhibitions for such collections as these.

NATURE STUDY IN SCHOOLS

BY A. KENNEDY, M.A., INSPECTOR OF SCHOOLS

IN the Nature Study Review, March, 1915, the Editor takes the opportunity to direct attention to the fact that "It was the unanimous opinion of those present at the December meeting of the American Nature Study Society at Philadelphia that no other matter is now more important in the nature study movement than the formulation of proper plans of organization for nature study materials for school use, and the lucid statement of the principles of methods to be used in presenting such materials." This issue of the Nature Study Review presents a full statement of the course in vogue in the Mankato, Minnesota, Normal School.

The retiring president, in her address, traced the Nature Study movement from its source, in 1862, to the present. "In reviewing the progress of Nature Study in the schools, we may be reassured, because the phases through which it has passed successfully are enough to have proven its robust qualities. Co-incident with the toy science made over from the university laboratories came what has been aptly termed the cute and fluffy

stage, which resulted from the impact of the Nature Study idea upon the imagination and enthusiasm of those teachers trained in pedagogy, but utterly untrained in science. This resulted in an effervescence that frothed over and soon dampened and rendered soggy the Nature Study section of the school curriculum. Now normal schools and teachers' courses in the university summer schools give the teacher the needed training and we can even see the prophecy fulfilled which L. H. Bailey made twenty years ago, when he said: "Nature Study is not science. It is not knowledge. It is not facts. It is spirit. It is concerned with the child's outlook on the world. Nature Study will endure because it is natural and of universal application. Methods will change; here and there it will be smothered; now and then it will be over-exploited; with many persons it will be a fad. But the spirit will live."

The growing importance of school gardening in relation to Nature Study and, in general, to the school curriculum is evidenced by the increasing attention devoted to school

gardening in the Nature Study Review, as well as in the various courses of the normal schools.

The most notable recognition of the school garden movement during 1914 has been the establishment of a department of school gardens by the United States Bureau of Education. It is not only an official recognition, but a commanding endorsement.

The greatest factor in the success of school gardening is the personality or individuality of the teacher. The teacher's interest will determine the garden. Local conditions will be contributing factors. But there can be no one model garden. A factor of secondary importance is the making of the garden an integral part of the school work in order that the spirit may create a new and natural interest in the other subjects of the course. The school garden of Souris School, Weyburn, 1914, provided in its government by a Municipal Council, elected from and

by the pupils, excellent material and information re the subject of civics. By reason of the fact that the plan of the garden represented the survey of the province, opportunity was afforded of presenting much useful information that class-room teaching usually finds difficult to present effectively in geography. In fact, the principal found this opportunity most helpful. Problems of administration arose which furnished valuable problems in arithmetic, not only for the councillors, but also for the pupils: in fact, the garden provided a text-book in arithmetic. Considerable material was also made available for other subjects of the course—material of such vital interest to the child that one recalls Tennyson's

"Flower in the crannied wall,
I pluck you out of the crannies,
I hold you here, root and all, in my hand,
Little flower—But if I could understand,
What you are, root and all, and all in all,
I should know what God and man is."

Victory in the present great war depends not more upon "the man with the rifle" than upon "the man with the hoe". The soldier's duty is to destroy the enemy; the duty of the tiller of the soil is to feed the friend. It is the "man with the hoe" who must keep the man with the rifle on the firing line. The battlefield, seared with trenching tools, must be backed by the field trenched with furrows. Fields bristling with ripening grain must re-inforce the trenches bristling with bayonets. Reaping machines must hum if howitzers are to roar. It has been estimated that it requires the services of three men to keep one soldier on the firing line. One of these three must till the soil.—

The Toronto Telegram.

A very large part, perhaps the largest part of these armies, have been called from agricultural occupations; only the women and children and the very old are left in the warring countries in Europe to till and harvest as best they can. It is towards the middle and latter end of this year that those who have thought most over this question look with painful apprehension. They fear, nay, they are certain of a shortage in the food supply of the world. It will be too late then to think of remedial measure. Whatever must be done to prevent disaster or to relieve it of its worst terrors and make it bearable must be done now. Food cannot be created in a day or a week the way coal can be dug out of the earth, or oil drawn from the wells. Meat and wheat, butter, fruit, vegetables, all must be prepared in anticipation many months beforehand, or years beforehand in the case of cattle.—From "*The Irish Homestead*."

PART IV

Special Contributions, Reports of Agricultural Organizations, Notes and Publications

CO-OPERATIVE CREDIT BANKING

ON page 358 of the fifth number of the GAZETTE is given an account of the Caisse Populaire, or People's Credit Bank, established through the instrumentality of M. Alphonse Desjardins, C. B., at Point Levis, Que., in the year 1900. In that number are given the principles that govern the bank and which show that the main asset of the institution is the sobriety, honesty and industry of the shareholders, for without holding a share no opportunity can be taken of the privileges, the foundation and maintenance being entirely based on co-operation. History narrates that many efforts have been made at organization seeking to accomplish the object aimed at by this system of banking, but that they have usually failed for the lack of mutual confidence, or because the guiding influence has been the accumulation of profit. By the plan adopted by M. Desjardins this latter idea is eliminated and shareholders are brought to recognize that affairs are conducted solely for the benefit of themselves, their neighbours and acquaintances, who must all have their work-a-day world within the provincial electoral district within which operations are strictly confined.

ILLUSTRATIONS OF SUCCESS

Eight years elapsed before M. Desjardins and the gentlemen associated with him were convinced that the system adopted at Levis was a success. After that, all doubt being removed, the establishment at different points of similar banks was encouraged, with the result that today the number exceeds one hundred and fifty. The progress made on the one hand, and the success achieved on the other, is best illustrated by a few quotations from a pamphlet written by M. Desjardins and published last August under the auspices of the Division of Remedial Loans of the Russell Sage Foundation of New York.

The Levis People's Bank, the initiatory

institution, completed its fourteenth year on the 30th November, 1914. At that date the general assets amounted to \$350,728.38; 7,228 loans had been made reaching to a total of \$1,566,316.94, and the shareholders numbered 1,228 at five dollars per share. Dividends amounting to \$29,545.61 had been paid at the rate of five per cent. A reserve fund of \$19,113.00 had been created, and \$7,480.30 paid in interest. The loans current amounted to \$197,050, and the sum in bank was \$30,192.53. Three-fourths of the loans did not exceed \$200, the largest proportion being between ten and fifty dollars, and not a cent had been lost. In the fourteen years the general turn over had been \$2,377,022.90.

Most of the banks show a proportionate development of business. Founded in January, 1909, in three years the co-operative bank of St. Sauveur had a turn over of \$57,334. The Quebec East People's bank in thirty months had assets of \$12,893.19, had loaned \$21,780.69, and showed a turn over of \$32,163.32. The oldest people's bank in Montreal, that in the parish of the Immaculate Conception, at the end of two years had assets of \$20,867.45, and the turn over was \$111,272.00. In Three Rivers the bank was organized October 17, 1909, and on January 31, 1913, had assets amounting to \$43,280, had loaned \$49,794.40, had handled \$64,266.34 of deposits, and had a turn over of \$104,959.70 at a total working expense of only \$135.81. Matane, Rimouski, has a bank that in 18 months had a turn over of \$11,302.80 and assets of \$4,766.26. In Ottawa the People's Bank of Ste. Anne for nine months' operation had a turn over of \$10,355.97 and assets of \$5,415.51. In the parishes of St. Gregoire and St. Louis de Courville, the chief residents of which are employees of the Montmorency Falls Cotton Mill, there are banks, each of which in the course of a year

had become firmly established, the bank of St. Gregoire having assets of \$7,000, and loans of \$5,000 and a turn over of \$35,000, while that of St. Louis de Courville had assets exceeding \$11,000, and loans of \$6,680. The foregoing are instances of successful operation in urban and labouring districts.

FARMING COMMUNITIES AND SETTLEMENTS

Turning to farming localities, where conservatism in financial matters is probably at its height, it is found that in St. Ulric, a parish in the county of Rimouski, on the shores of the St. Lawrence, one of these banks in thirty-seven months had accumulated assets of \$24,460.38, had made loans of \$73,530.05, had paid \$632 in dividends and \$562 interest on deposits, and had transacted general business to the extent of \$116,817.86. In Armagh, county of Bellechasse, with a population of 1,400 farmers to St. Ulric's 1,600, the bank in thirty-four months had accumulated assets of \$27,183.23, and had a turn over of no less than \$356,686.03 at a total expense of \$173.49, the loans reaching \$37,643.58. This was up to December 31, 1912. On May 31, 1914, the assets had swollen to \$79,749, the turn over to \$568, 653 and the loans to \$123,060, the expenses in connection with these increases being only \$52. In thirty-nine months the parish bank of St. Maurice of Champlain had a turn over of \$424,000 and assets of \$54,000. This in a parish with a population not exceeding a thousand. In Maria, County of Bonaventure, a parish of about 800 souls, at the end of four years the bank had assets of \$20,485.06 and had reported a general business of \$49,294.36, of which \$29,625.91 was in loans. In smaller parishes on a smaller scale similar results have been achieved.

In mining centres and among settlers, like information regarding these institutions is forthcoming. At Thetford Mines, the famous asbestos mining centre, in rather less than four years assets of \$30,000 and a general turn over of \$100,000 were recorded. At Black Lake, a much smaller locality, the bank had made loans of \$9,143.82, and had a turn over of \$12,000. In St. Damase of Matane, a settlement of 700 souls, in twenty-six months the bank boasted a turn over of \$25,356.78, and assets of \$6,900, while the loans granted amounted

to \$14,140.18. St. Martin, in the County of Beauce, a settlement of a like character, had such a bank, the total business of which in twenty-five months reached \$92,417 and the loans to \$43,092. In several places the Indians had shown a marked and active interest in the bank.

BENEFITS CONFERRED

Incidents illustrating the benefit conferred by the banks are many. In one case a widow borrowed \$28 to pay for a sewing machine that by weekly payments would have cost her \$45, and by operating which she made her living. In another a settler lost his horse, but, being a shareholder in the parish bank, borrowed a small sum to buy another and speedily repaid the loan out of his labour in the lumber woods. An Ottawa man with seven children borrowed \$500, started a shoe shop and at the end of the year had nearly wiped out the score with regular monthly payments. A poor woman of Levis, 75 years of age, had carried a mortgage on her house of \$432 for twenty-nine years. She borrowed the amount, paid \$2.50 a week in return, and in fifty months was clear of debt, the amount of interest being only equivalent to 3 $\frac{1}{4}$ per cent. A farmer borrowed \$240 to pay cash for implements that would have otherwise cost him \$295, and in a few months had repaid the loan. It is hardly necessary to multiply these illustrations, as they only repeat the oft-told tale of the value of ready cash, such as these banks supply to their shareholders.

THE MANAGEMENT

The modus operandi is simple. Each association, or bank, is carried on by three unremunerated committees, chosen from the shareholders, namely, a council of administration with from five to nine members, a credit committee of three members and a supervisory committee also of three. The members of the credit committee must be unanimous in granting a loan and cannot themselves be borrowers. The shares of five dollars can be paid in instalments, involve no liability, and are withdrawable. The Council of Administration passes on new applicants for shares, and has a general eye to the business, while the supervisory committee constitutes a permanent board of supervision and audit.

The Northern State Bank of Iowa has offered \$150 in five prizes for the best crops of alfalfa grown by citizens of Sioux county, that state. Competitors must be either a depositor or borrower of the bank. Bankers of the same country are offering a free trip to Panama for the boy who produces the best yield of corn on any one acre.

SASKATCHEWAN LIVE STOCK REPORT

The report of the Saskatchewan Live Stock Commission, appointed last November to look into the condition of the live stock industry in the south-western portion of the province, has been prepared. In making the report the commissioners dealt more particularly with such questions as "the period of year during which animals should be restrained from running at large," and "the location, equipment and administration of pounds." The Commission held sittings at 16 points throughout the district.

A number of recommendations were made, among these being the following:—

"That municipal councils continue as at present to fix the period of the year during which animals shall be restricted from running at large within the respective municipalities and to provide pounds, appoint pound-keepers and generally be responsible for the administration of the by-law dealing with these matters.

"That a uniform standard 'herd' by-law be drafted (along general lines of Parts 1 and 2 of The Stray Animals Act), leaving to the respective municipal councils only the following matters:

(a) The fixing of the period of the year,

if any, during which animals shall be restrained from running at large;

(b) The locating of pounds and appointment of poundkeepers; and that this uniform standard by-law be approved by the legislature and its completion and enactment by every municipal council made compulsory.

(c) That the provisions of each such "herd" by-law be uniform over the entire municipality to which it applies (i.e., that it be not possible for a council to provide for herding during the summer months in one township, herding throughout the year in another, and free range throughout the year in a third).

"That the standard by-law contain a section prohibiting the running at large of any stallion or bull of breeding age at any time, and that The Stray Animals Act be amended to the same effect.

"That provision be made in the standard by-law for some simple method of arbitrating the amount of damages claimed, provided the amount is disputed as being excessive; each party concerned to deposit 10 per cent of amount in dispute, with a minimum of \$5 and a maximum of \$20, the loser's deposit to be forfeited to meet expenses of arbitration."

VACANT LOT GARDENING

THE vacant lot garden work in Regina, described by Dr. W. W. Andrews in the February number of THE AGRICULTURAL GAZETTE, has made satisfactory progress. Before the end of April 538 lots were taken up, and it was expected that the 600 mark would be passed before the planting season closed. Dr. Andrews in writing concerning this work states that "the Bureau of Public Welfare is planning to take two blocks of lots for the use of families that they have had to help. They will advance them the seed, which we shall supply, and pay for the plowing of their lots. The Bureau will hold their leases and expect to be recouped when the garden stuff is ready to be sold. In most cases the Bureau may take it off their hands at a valuation and credit the gardeners with it, for their winter supplies."

Dr. Andrews states that "general interest in gardening is increasing all over the city. There will be about 2,000 more gardens in the city than last year. Many back lots are being dug up which were never cultivated before. Many of the best citizens

are taking vacant lots to supplement the home garden in the back lot."

Again referring to the use of cotton instead of glass for covering cold frames and hot beds, Dr. Andrews says, "Glass has its uses. But many of our gardeners leave home in the morning, which may be cloudy, clearing up by nine o'clock and our hot sun is apt to raise the temperature too high. Cheesecloth quilted double by sewing across every twelve inches is preferable. It is like ventilated underclothing, open but warm on account of imprisoned air. Hard cotton is of little use, or rather of less use than one more open. We are simply using the same protection and means of ventilation which is making the cotton window so satisfactory in some of the public schools, and in sleeping rooms during the winter. I hope many will try the new device. The plants are very hardy, and stand transplanting well. The cost of cotton is so low that one can afford to have a large area of cold frames and hot beds for melons, squash, tomatoes and bush beans and protect them from autumn frosts."

THE ALBERTA RURAL DEVELOPMENT LEAGUE

THERE has been formed in the province of Alberta an organization for the purpose of improving the industrial enterprises of the province. At a convention held at Olds about the middle of March, the following report and recommendations made by a committee previously appointed, were adopted.—

That an organization be formed to be called the Alberta Rural Development League.

That the officers of the league consist of an honorary president, a president, three vice-presidents, a secretary, and a treasurer.

That an executive committee consisting of the above officers and six other members be elected.

That the members of the league be those persons who are interested in its objects and, who shall be admitted to membership by form to be prescribed by the executive committee.

That the membership fee shall be \$1 per year.

That this convention elect officers of the league, except the secretary and treasurer, and also the executive committee, to hold office until their successors are elected.

That the incorporation of the league; its organization into a working body; and the entire management of its affairs, be vested in the executive with power to add to their number and to the objects of the league as set forth below.

- (a) That the objects of the league shall include: To secure the co-operation of all who are, or who may become interested, in the development of the farm lands of Alberta, in organized work for such development.
- (b) To advertise the agricultural resources of the province of Alberta.
- (c) To bring home-makers into the province and locate them on the land in the best places for their several purposes, giving them reliable information and securing for them the cheapest and best land to be had.
- (d) To effect a distribution of the population of the province so as to place a proper proportion of the people on farms.
- (e) To bring land at present unproductive, under cultivation; this to have particular reference to lands in, or near, cities and towns.
- (f) To secure a better system of agricultural credits.
- (g) To facilitate the transportation and marketing of farm products.
- (h) To extend education along agricultural lines and promote the general betterment of farm life, social, educational and economic.
- (i) To bring about a condition that shall do away with the present large importation of agricultural products which the province is capable of producing.

SOCIETIES AND ASSOCIATIONS

HOLSTEIN BREEDERS' CLUB

The Waterloo County Holstein Breeders' Club was organized recently at a meeting in Berlin, Ontario.

The objects of the club is the advancement of the general interests of the Holstein-Freisian by the holding of public sales at auction; by encouraging the entry of cows and heifers in the advanced registry, and the weighing and testing of milk from the whole herd, discussion of the best methods of breeding, rearing and exhibiting and raising the standard of excellence of the breed by bringing before the public the good qualities and exceptional merits, and in other ways to generally widen and extend the interests of this breed of cattle.

The officers and directors appointed for

this year were as follows: President, A. C. Hallman, Breslau; 1st vice-president, And. Zoeller, New Hamburg; 2nd vice-president, Anthony Gies, Waterloo; secretary-treasurer, Wm. Rife, Hespeler. Directors—Warren Bean, New Hamburg; Irwin Shoemaker, Berlin; H. Knell, Berlin; Wm. Douglas, Galt; John Howling, New Dundee; D. B. Hoffman, Hawkesville; Henry Beckner, Elmira; Herbert Groh, Preston; Allan Shantz, Waterloo; H. Ludolph, New Dundee. Auditors, Irvin Hallman and Titus Kolb.

PRESERVATION OF BIRD LIFE

A branch of the Audubon Society for the Preservation of Bird Life, for the province of Manitoba has been organized in Winni-

peg. At the organization meeting, which took place on April 5, it was proposed, and generally approved, to form numerous classes of ten school children each, headed by a teacher, each pupil to be required to subscribe ten cents and to receive regularly the magazine "Bird Lore", published by the Audubon Society with headquarters at New York. Each member of the club would receive also a club button.

It was announced at the meeting that there is pending a treaty between the United States and Canada, having for its object the preservation of the life of migratory birds passing back and forth between the two countries. The treaty, it was stated, had been signed for each province in Canada, except British Columbia, which province was expected to sign the treaty at an early date.

The following were the officers elected:

President, Manlius Bull; hon. president, Rev. Dr. Salton; vice-president, Dr. W. A. McIntyre; second vice-president, G. H. Bartlett; third vice-president, H. A. Speechly; secretary, J. B. Wallace; assistant secretary, W. E. Grant; treasurer, Mrs. Percy Anderson.

Executive Committee: Mayor Waugh, W. J. Bulman, V. W. Jackson, J. W. Goulden, Norman Criddle, T. M. McGuire, Rev. J. W. Little, F. B. Wallis, W. G. Scott, C. A. Rowley, Dr. Gordon Bell, Dr. J. Bond, Prof. Trigerson, Daniel McIntyre, Hon. G. R. Coldwell, Mr. McPherson, B. J. Hales, and Mrs. C. P. Walker.

PRINCE EDWARD ISLAND EGG AND POULTRY ASSOCIATION

The second annual meeting of the Prince Edward Island Egg and Poultry Association was held at Charlottetown on April 20th and 21st. There are now 62 established circles in Prince Edward Island, each of which was represented at the conference by one or two delegates.

The following statements will show the steady increase in membership and the business transacted by the association.

Approximate membership of twenty egg circles shipping March 18th, 1914:—1,100.

Approximate membership of sixty-two egg circles shipping, March 31st, 1915:—5,200.

STATEMENT OF BUSINESS TRANSACTIONED

Business transacted January 1st, 1914 to March 31st, 1915:—

No. doz. collected (42 circles)	
actual.....	921,264
No. doz. collected (19 circles)	
estimated.....	289,645
Total, doz.....	1,210,909

Gross value of eggs collected...	\$279,114.60
Average net price per doz.....	.22
Average cost of collecting, per doz.	1.05

The above statement represents in many cases only seven or eight months' business.

Some of the benefits accruing from this form of co-operation are:—an opportunity is presented to the farmers by which they may reap just returns for their labour; the keeping of better strains of poultry, and increased production are encouraged; Prince Edward Island eggs have become popular in the Boston and Montreal markets, more especially since the establishment of candling stations.

The following resolutions were passed at the annual meeting:—

RESOLVED: that it is the opinion of this convention that the Federal Government be asked by the Central Association to take the necessary steps to have such legislation enacted as will tend to protect the quality of eggs exported by this Association. We would urge that the Legislature would set standards or classes by which eggs placed on the market will be known, and persons selling those eggs must clearly indicate which class they come under.

RESOLVED: that the various egg circles should send all eggs to the Central Candling Station.

ALBERTA PROVINCIAL POULTRY ASSOCIATION

The executive committee of the Alberta Provincial Poultry Association met in Calgary on April 2nd.

The desirability of fostering the infertile egg business was the subject of a communication from the Swift-Canadian Co., Ltd., and it was decided that the provincial government be requested to take steps looking to the production of more of this class of egg, and that an article on the advantage of producing an infertile egg be incorporated in the poultry bulletin now being compiled.

Action on the part of the association looking to an improvement in conditions in the marketing of poultry and its products was requested by H. Perry, President of the Gadsby Poultry Association. It was pointed out that the Provincial Government had secured cold storage facilities in Edmonton and Calgary and was prepared to enter into an agreement with egg circles or associations to handle their eggs on a co-operative basis, and the letter was therefore referred to the poultry superintendent.

It was decided to make an endeavour to arrange for a meeting of representatives of the provincial associations of the four western provinces with a view to the formation of a Western Canada Poultry Association.

The Farm and Ranch Review was named as the official organ of the association.

It was decided to request all members to include in their advertising the words "Members of Alberta Poultry Association."

SASKATCHEWAN CO-OPERATIVE ASSOCIATION

The report of the first complete year of the Co-operative Organizations branch of the Saskatchewan Department of Agriculture shows that 102 of the associations, the returns from which had been received, had a total of 21,850 shareholders with a paid up capital of \$13,494.20, assets of \$37,337.33 and a total liability, including capital, of \$29,717.33. The average amount of authorized capital is \$6,843.13, and the shares have an average par value of \$23. Seventy associations engaged in co-operative purchasing of farm supplies; three confined their operations to live stock; six combined live stock dealing with other lines of business, but 29, owing to the prevailing conditions, were inactive during 1914. The total value of farm supplies handled was \$239,320.42, and of live stock sold \$42,034.22.

THE SASKATCHEWAN NATURALISTS' CLUB

The Saskatchewan Naturalists' Club was organized in 1912 for the purpose of making a systematic study of the Natural History of the province. When organized the club consisted of about eighteen teachers. At present there are forty members about half of whom are outside of the teaching profession.

The policy of the Saskatchewan Naturalists' Club might be outlined as follows:—

To encourage the study of natural history in the schools,

To build up, and eventually publish, a Saskatchewan flora,

To record the introduction of new plants and insects into the province,

To keep a record of the insect pests,

The co-operation of the different members in building up the provincial museum at Regina,

To get in touch with similar organizations in other parts of the Dominion with the view of exchanging specimens, etc.,

To publish an annual report.

As yet there is no regular publication of the Saskatchewan Naturalists' Club. Each month, however, a certain portion of the *Saskatchewan Farmer* under the heading "Natural History Department" is taken up with articles written by the members.

The first annual report is in the press at present, the publication of it being undertaken by the Department of Agriculture.

The secretary of the club is Geo. S. Johnson, B.A., Collegiate Institute, Moose Jaw, Sask.

HOLSTEIN-FRIESIAN RECORDS

For the last half of March reports of the official tests of 86 Holstein-Friesian cows and heifers were received and entered in the Record of Merit by the secretary of the Holstein-Friesian Association, Mr. W. A. Clemons. Helena Pauline Korndyke leads the mature cows with 29.97 lb. of butter from 733 lb. milk, best day's milk, 111.5 lb. This gives Helena Pietertje's Pauline two daughters that have produced over 110 lb. milk in one day, an achievement that Mr. Clemons thinks no other Canadian cow can claim. Royalton Canary Queen, Francy 4th, Ladysmith Calamity and Lady Woodcrest Paxton all make over 27 lb. butter, and all these except Francy 4th have given over 100 lb. milk in a day. The best of the senior four-year-olds is Oxford Jewel DeKol Francy with 23.47 lb., while the juniors are led by Pride Hengerveld Lennox with 29.63 lb. butter. Francy Belle Wayne stands highest among the senior three-year-olds, making 29.20 lb., in a week. Calamity Snow Mechthilde after making 722 lb. butter last year in the Record of Performance comes in the lead of the junior three-year-olds with 24.45 lb. butter. Colony Birdie Ormsby is the best senior two-year-old with 20.02 lb., while first place in a big class of juniors is held by Madam Pauline Canary 2nd, with 17.46 lb.

THE CANADIAN FLAX ASSOCIATION

There was recently held at London, Ontario, a conference of flax growers and dealers and of owners of flax mills. After discussing the present situation, the new conditions brought about by the great war, and the demand for increased production, it was decided to form an organization to be known as The Canadian Flax Association.

The following officers were elected:

President, Mr. George H. Campbell, Toronto. (President of Canadian Flax Mills, Limited.)

Vice-president, Mr. G. Howard Fraleigh, Forest.

Secretary-treasurer, Mr. A. L. McCredie, Toronto. (President of the Ontario Flax Company.)

Executive Committee, the president, vice-president, secretary-treasurer and the following: Messrs. William Forester of Mitchell, Owen Greiger of Hensall, Amos Tipling of Wingham, T. A. G. Gordon of Sarnia, and A. M. Kerr of Doon.

The Executive Committee were instructed to confer with the Dominion Government and to advise as to the means best adapted to promote the industry.

The president, Mr. George H. Campbell, gave the flax millers a description of the new process of handling flax at the mill recently erected by his company at St. Catharines.

NEW PUBLICATIONS

THE DOMINION DEPARTMENT OF AGRICULTURE

Orders Respecting Foot and Mouth Disease, Imports of Animals, etc. This is a circular over the signature of the Deputy Minister of Agriculture explicitly detailing the orders that came into force on May 9th, 1915, regarding the admission of horses, dogs, sheep and lambs (for immediate slaughter only from the states of Idaho and Washington), cats, pet birds, wild animals, poultry (alive or dressed), hay or straw, provisions, meats, lard, tallow, butter, milk, cream, hides, pelts, wools, hair and feathers. These orders replace those of the 9th day of November, 1914, under the Animal Contagious Diseases Act, and the amendments thereto.

A neatly printed cardboard, 9 x 14 inches, has been issued by the Department of Agriculture giving the standards for Canadian Eggs adopted by the Third Annual Convention of The Canadian Produce Association, Guelph, January 11th and 12th, 1915. The cardboard is intended for hanging in storehouses and shipping offices. As the contents have already appeared in the GAZETTE, (page 226, Vol. 2, No. 3, there is no need to repeat them here, nor to impress their importance upon all interested in the poultry business.

Foreign Agricultural Intelligence, March, 1915, issued from the office of The Canadian Commissioner of the International Institute of Agriculture. The leading features are "The Control of Plant Diseases in Sweden, an original article by Prof. Jakob Eriksson, Stockholm, from which much valuable and interesting information can be gleaned; "Overhead System of Irrigation," "Duration of the Action of Manures," "Alfalfa Hybridization," "Experiments with Autumn-sown Crops in Ontario," "Preventive Inoculation against Sheep and Swine Pox," "Preparation of Ensilage," "Quality in Wool," "Flax Growing," "Belgian Refugees and English Agriculture," "Substitutes for Oats in Feeding Farm Horses." Comparative tables of imports and exports of cereals, of prices and of production add to the interest of the number.

THE DOMINION EXPERIMENTAL FARMS

THE DIVISION OF CHEMISTRY

Manure and Fertilizers, by Frank T. Shutt, M.A., D.Sc., Dominion Chemist. This is Circular No. 8 of the Division of

Chemistry. It comprises eight pages of useful advice founded on actual experience. It describes the value of different fertilizers and the manner in which they can be most profitably applied.

THE DIVISIONS OF HORTICULTURE AND AGROSTOLOGY

Growing Field Root, Vegetable and Flower Seeds in Canada, by M. O. Malte, Ph. D., Dominion Agrostologist, and W. T. Macoun, Dominion Horticulturist. This is Bulletin No. 22, Second Series. In presenting it Director J. H. Grisdale, of the Dominion Experimental Farm, explains that as the importation of seeds from Europe on the scale that has hitherto prevailed will be impossible during the duration of the war, it is hoped that the Bulletin, including as it does quite comprehensive instructions as to how to go about growing these seeds in Canada, will prove helpful to many and act as an inspiration to others to try a small plot themselves. Canada is urged to make herself independent of foreign markets by producing at home what now has to be brought from abroad.

THE DIVISION OF BOTANY

The Control of Potato Diseases, by H. T. Güssow, Dominion Botanist, being Circular No. 9 of the Division of Botany. This Circular gives particulars in detail of the value and uses of preventatives of diseases of potato. By following the suggestions herein set out farmers will increase their yield, improve their land and increase their profits.

THE DIVISION OF HORTICULTURE

Summary of Results, Horticulture, 1914, Bulletin No. 82, of the Division of Horticulture; prepared by W. T. Macoun, Dominion Horticulturist, and Superintendents of the Branch Farms and Stations. This is a story of experiments and results not only at the Central, but at the farms or sub-stations in every one of the provinces of the Dominion. The publication is replete with information on the cultivation of every variety of vegetable, every variety of fruit, and many orders of plants and flowers, in all parts of the country, in many kinds of soil and under divers conditions. It is a comprehensive Bulletin of 88 pages that is deserving of wide circulation and close study.

THE ENTOMOLOGICAL BRANCH

The Control of Locusts in Eastern Canada, by Arthur Gibson, Chief Assistant Entomologist. This is Circular, No. 5, of the Entomological Branch. When the locust becomes plentiful, it is one of the most destructive pests known to agriculture. For this reason this circular, telling how to deal with the plague when it arrives, and which can be had on application to the Publications' Branch, should be in wide demand. Mr. Gibson in his introduction explains that during the years 1912, 1913 and 1914 locusts were extremely numerous and destructive in the provinces of Ontario and Quebec and instances a district in Lanark county where 75 per cent of the crops were destroyed and damage done to the extent of \$6,000.

The Army Worm (Cirphus-Leucania-unipuncta Haw) by Arthur Gibson, Chief Assistant Entomologist; Bulletin No. 9 of the Entomological Branch. At the outset this 34-page bulletin indicates the importance of the subject it treats. Than the army worm there is hardly a more persistent, prolific and destructive pest. It is estimated that last year this worm inflicted a loss of a quarter of a million dollars on the province of Ontario alone. Other provinces suffered, but not to so large an extent. Mr. Gibson describes the inroads made by the pest, its onward march, its description, its habits, its breeding places, methods of identification of its approach and the manner in which it can best be dealt with. The bulletin is distinctly and definitely illustrated.

THE SEED BRANCH.

An Inquiry Regarding the Wheat, Oats, Barley, Flax and Ensilage Corn used for seed in Canada, by Edgar D. Eddy, B.S.A., Chief Seed Inspector. This is Bulletin No. S 9 of the Seed Branch. In his introductory letter to the Minister, Mr. George H. Clark, Seed Commissioner, explains that "The main object of this inquiry was to ascertain the common practices of farmers in representative localities in each of the provinces. The data obtained is interesting and even surprising." The inquiry was instituted in the spring of 1913 and continued in 1914. Seed inspectors were instructed to visit farmers and procure samples of seed actually being put in the ground. Over 3,700 samples were forwarded to the seed laboratory, where they were tested for purity and germination, with the results detailed in this 32-page Bulletin.

PROVINCIAL DEPARTMENTS OF
AGRICULTURE AND OF EDUCATION

PRINCE EDWARD ISLAND

The annual report of the Department of

Agriculture for the year ending 31st December, 1914, is prefaced by a page illustration showing the Directors of Agricultural Instruction in public schools. In his report the Commissioner of Agriculture, Hon. Murdoch McKinnon, states that the efforts of the department were directed during the year to the perfecting of the system of agricultural education previously inaugurated. This was undertaken jointly with the Superintendent of Education and the Principal of the Prince of Wales College. Women's Institutes have been organized in each county. Tribute is paid to the work of the Dominion Department of Agriculture, and to the useful purpose served by THE AGRICULTURAL GAZETTE. "No encouragement, local or federal", the report continues, "has been so productive of good as the grant provided under THE AGRICULTURAL INSTRUCTION ACT."

NOVA SCOTIA

The Rural Science Bulletin, edited by L. A. DeWolfe, M.Sc., Director of Elementary Education for Nova Scotia, under date of April 20th, 1915, points out that there are in Nova Scotia 110 teachers holding a rural science diploma or rural science certificate. Of this number 85 are making the necessary monthly report to the Department of Education, and have collectively subscribed for 22 different periodicals this year. Among these periodicals the *Educational Review* leads with 57 subscribers; next follows the *Canadian Teacher* with 19; *Bird Lore*, 10; *Nature Study Review*, 9; *Primary Education*, 8; *Guide to Nature*, 5; *Rural Education*, 3; *Garden Magazine*, 2, and a large number of periodicals have one subscriber each. In addition each rural science teacher is receiving regularly THE AGRICULTURAL GAZETTE OF CANADA.

In the annual report of the Superintendent of Education of Nova Scotia for the year ended 31st July, 1914, the expenditure for rural science is placed at \$9,315.35 taken out of the Dominion grant of \$61,247.87. The estimated value of the rural school libraries is \$5,896.40. Of the 102 students attending the regular course at the Nova Scotia College of Agriculture, 54 were from Nova Scotia, 27 from New Brunswick, 8 from Prince Edward Island, one each from British Columbia and Ontario, six from Great Britain, two each from Newfoundland and the United States and one from Belgium. The short course of two weeks held in January attracted 351 students. A short course in connection with the Women's Institutes had 51 students in attendance.

NEW BRUNSWICK

Report on Agriculture for the Province of

New Brunswick for 1914. In the opening pages chronicle is made of the disposition of the federal grant to the province of \$49,407.20. The Director of Elementary Agricultural Education shows an attendance at the Nature Study and Elementary Horticulture classes of 1,356 pupils. An increase is also reported of eleven schools in four counties.

The Animal Husbandman reports progress in all directions, except in the matter of sheep, the number of which has decreased owing to "dogs" and the "Fence Problem". To stimulate the sheep-breeding industry 50 pure-bred animals were imported from Ontario. The six poultry fattening stations established in the province have done good work in helping farmers to put their poultry on the market in good condition.

An increase in dairy products for the year is recorded, the quantity of butter produced being 170,000 pounds in excess of 1913. The increase of cheese was relatively small.

The Field Husbandman supplies information regarding co-operative experiments with alfalfa and fodder corn, showing some failures owing to unsuitable conditions. The report indicates the importance of pure seed selection and deals with the good work being done in conjunction with the department by the Canadian Seed Growers' Association.

A summary of the crops in 1914 shows that hay was a little below the average, that oats although not promising at first, ultimately turned out well, that wheat was heavier than in the previous year, that the dry weather affected buckwheat, that peas and beans were better than the average, that potatoes were 10 per cent above the average, that carrots, beets and parsnips showed improvement, that Swede turnips did well, that cabbages were 95 per cent of the average, that the dry weather affected the pastures, that apples were abundant, that plums were about the average, that strawberries were very short, the yield being below 40 per cent of the average, that raspberries and blackberries were a little below and that gooseberries and cherries made a splendid showing.

Pulverized Limestone. Circular No. 2 of the Soils and Crops Division of the New Brunswick Department of Agriculture is devoted to explaining the intended uses of the recently purchased pulverising plant. Agricultural societies and groups of ten farmers are invited to make use of the plant, providing that not less than fifty tons and not more than two hundred tons of stone are sent in.

QUEBEC

Report of the Minister of Agriculture, 1914. This is an extensive volume making 366 pages, not including detailed statements of receipts and expenditure on farmers' clubs account, on agricultural society account and of points awarded in agricultural merit competitions, as well as many full-page and half-page illustrations.

The Minister, Hon. J. E. Caron, notes that twenty-five new co-operative societies were formed from 1st July, 1913, to 1st July, 1914, including the Quebec Cheese-maker Co-operative Agricultural Society, which now has more than 1,300 members. The Minister traces the progress of agricultural education, narrates what has been done in promotion of the maple sugar industry, refers to the advance of stock breeding, and to the favourable prices received at public sales, to the progress in various branches of agriculture, and to the increase in farmers' clubs and agricultural societies. The sums paid to 30th June, 1914, on agricultural account amounted to \$483,541.61, apart from the federal subsidy of \$159,482.40.

Complete reports of all the divisions and districts are furnished along with lists of members and details of the proceedings of farmers' clubs and agricultural and co-operative societies.

Competitions in Standing Crops, for the Production of Seed Grain, organized by the agricultural societies of Quebec. In giving the reports of the judges, it is shown that the number of competitions increased from 18 with 171 competitors in 1908 to 67 with 1,023 competitors in 1914. Last year there were 45 competitors in oats with 691 entrants, 10 potato trials with 174 contestants, 4 competitions for seed clover with 40 competitors, 4 for Indian corn with 50 competitors, 3 wheat competitions with 48 contestants, and 1 each of barley and timothy with 10 competitors. The judges insist upon the necessity of treating seed-grain for smut before sowing. The remarks of the judges given at the foot of each result are of special interest.

ONTARIO

Care and Management of the Apple Orchard in the United Counties of Dundas, Stormont and Glengarry, by E. P. Bradt, B.S.A., District Representative of the Ontario Department of Agriculture for the counties of Dundas and Stormont. This publication, while professing to be only the result of observation in the counties mentioned, yet contains matters of vital interest to all sections of the country. It deals with the outlook, the sale, the nursing and planting, the management of young orchards, the bearing orchard, spraying, thinning, picking

and packing, marketing and results of demonstrations. One of these demonstrations shows a profit from $1\frac{1}{4}$ acres of \$273.74, or \$205.31 per acre. A list is also given of bulletins and books that the fruit-grower will find valuable.

Smuts and Rusts of Grain Crops, by J. E. Howitt, M.S.Agr., Professor of Botany and R. E. Stone, Ph.D., Lecturer in Botany, Ontario Agricultural College, Bulletin No. 229 of the Ontario Department of Agriculture. If this Bulletin does not tell all there is to know about the subjects of which it treats, it at least furnishes twenty-four pages of facts and conditions that should be of invaluable help to the farmer. The total yearly financial loss to the agriculturists of Ontario due to grain smuts is stated to be \$2,720,000, of which oats is credited with \$1,800,000, wheat \$640,000, barley \$200,000 and corn (grown for husking) \$80,000. Results are given of experiments in prevention and cure.

Farm Crops, Results of Experiments at the Ontario Agricultural College, by C. A. Zavitz, B.S.A., Professor of Field Husbandry and Director of Field Experiments, being Bulletin No. 228 of the Ontario Department of Agriculture. This is a Bulletin of 80 pages describing experiments in the cultivation of every sort of grain and root crop grown in the province of Ontario. Many interesting comparative and statistical tables are given, with illustrations, the whole forming a vast fund of information.

Ontario Pure Bred Live Stock Census. In addition to the returns previously noticed reports have been received from the District Representatives for the counties of Northumberland, Norfolk, Dundas and Stormont, Lennox and Addington, Welland, Halton and Frontenac. In each case the name of the breeder is given with his post office address and the number of aged animals, two or three years olds, one to two year-olds and under one year, according to whether male or female. Northumberland, for instance, has 618 Holsteins, 500 female and 118 male, 204 Shorthorns and 222 Ayrshires. Norfolk has 684 Holsteins, 180 Shorthorns, and 30 Ayrshires. Welland has 249 Shorthorns, 29 Ayrshires, 341 Holsteins and 176 Jerseys. Halton claims 238 Holsteins and 700 Shorthorns. Dundas and Stormont have 642 Holsteins, 232 Ayrshires. Particulars are also given as to the number in breeds of horses, sheep and swine but as the reports are still being received a summary of the total result is not yet possible.

Tenth Annual Report of the Ontario Vegetable Growers' Association, 1914. In this publication issued by the Ontario Department of Agriculture, Secretary-Treasurer,

J. Lockie Wilson, in his report lends emphasis to the Dominion Seed Commissioner's warning that unless extra efforts are made in Canada to prepare seed there is likely to be a great shortage for next year. Mr. Wilson points out that in 1914, the Dominion imported 452,721 pounds of beet and mangel seed from France, and 448,022 from Germany. Other seeds and a large quantity of roots were imported from the same countries. Mr. S. C. Johnston, B.S.A., contributes a paper on "Celery Blight," the Dominion Horticulturist on "How to Grow One's Own Vegetable Seeds," Mr. A. J. Logsdail on "Breeding of Vegetables," and Professor W. R. Graham on "Poultry Raising in Connection with Vegetable Growing." Messrs. F. C. Hart and F. F. Reeves discourse or report on co-operative operations and J. E. Britton, B.S.A., describes "Vegetable Work" at the Ontario Agricultural College. An instructive and inspiring address by the Ontario Minister of Agriculture, Hon. J. S. Duff, is a feature of the report.

Corn Growers' Association, 1914, sixth annual report. Papers by Dr. G. C. Creelman, president of the Ontario Agricultural College, on "Some Rural Problems," in which the possibilities of the farm are dealt with; by Mr. L. H. Newman on "The Production of Seed Corn of Types Required in Eastern Ontario and Quebec," detailing the results of experiments conducted in the Eastern Townships; by Professor C. P. Norgord, of Wisconsin Agricultural College, on "Corn Growing for Seed and Silage," detailing the feeding value of silage, the importance of alfalfa, the cultivation and curing of seed corn, and by Professor C. A. Zavitz, of the Ontario Agricultural College, on "Crop Improvement from the Farmers' Standpoint," dealing with underdrainage, rotation and varieties, and addresses by Hon. J. S. Duff, Minister of Agriculture, and Professor S. B. McCready, of the Ontario Agricultural College, delivered at the annual convention are the main features of the report, to which supplementary articles by Mr. Jack Miner of Kingsville, Ont., on "The Value and Intelligence of our Birds on the Farm" and by Mr. J. W. Purcell, Hydro-Electric Engineer, Toronto, on "Electricity for the Farm" lend additional interest.

Agricultural Societies of Ontario, Appendix to Annual Report, 1914. This is a record of the Standing Field Crop Competitions with lists of winners in grain and sheaves at the Canadian National Exhibition, Toronto, Central Canada Exhibition, Ottawa, Guelph Winter Fair and Eastern Ontario Provincial Seed Fair.

Fruit Growers' Association, forty-sixth annual report, 1914. A record of the proceedings at the fifty-fifth annual conven-

tion is presented, at which an address was given on "The Future of the Fruit Industry," by Mr. D. Johnson, Dominion Fruit Commissioner, and papers read by Professor J. W. Crow on "Citrus Fruits and Bananas in Relation to the Marketing of Ontario Fruits," on "Selection of Nursery Stock" and on "Co-operative Experiment," by Mr. F. C. Hart, Director of Co-operation, on "The Business Side of Co-operation," by Mr. W. A. McCubbin, M.A., Dominion Field Laboratory of Plant Pathology, St. Catharines, on "Experimental Results on Peach Canker," by Mr. Edwin Smith, in charge of Fruit Cold Storage and Transportation Investigations, Grimsby, on "Precooling of Canadian Fruits," by Mr. F. M. Clement, Director, on "The Vineland Experiment Station: its Purpose, Aims and methods" and "Spring vs. Fall Planting," by Mr. G. E. McIntosh, Transportation Expert, on "Business Methods for the Fruit Grower," by Mr. Harold Jones, Maitland, on "Cultural Methods," by Mr. W. H. Bunting on "Direct to the Consumer," by Mr. D. W. Clark, on "The Retailer's Point of View" and Mr. W. T. Macoun, Dominion Horticulturist, on "Yields of Apple Trees at Different Ages."

The Cherry in Ontario, by E. F. Palmer, B.S.A. This is Bulletin 230 of the Fruit Branch of the Department of Agriculture. It consists of forty pages and is well illustrated. Commencing with "The Status of the Industry," Mr. Palmer describes the "Relative Importance of Sweets and Sours" and provides innumerable hints and suggestions and a vast amount of information on cultivation, fertilization, pruning, marketing, shipping, cost of production, etc. It is interesting to know that the cherry imports from the United States to Canada grew from 105,297 pounds valued at \$9,517 in 1901 to 1,072,300 pounds valued at \$119,021 in 1914.

Vegetable Growing, by S. C. Johnston, B.S.A. Vegetable Specialist, Ontario Department of Agriculture. This is Bulletin 231 of the Department. It gives explicit instruction on vegetable growing, both on a large scale and in back-yards. Illustrations and diagrams add to the value of the bulletin. Hot house cultivation and methods of irrigation are dealt with very fully. An especially interesting table is that giving the seed required for various crops. The information conveyed is calculated to be of especial value to the amateur vegetable gardener.

Field Beans, Bulletin No. 232, by C. A. Zavitz, B.S.A., Professor of Field Husbandry and Director of Field Experiments Ontario Agricultural College. Many farmers are taking up bean culture, in which this well-written and well-compiled

16-page publication, with apt illustrations, is calculated to help them. Professor Zavitz, who has evidently made a keen study of his subject, states that while from 1882 to 1891, the average annual value of the bean crop in Ontario was \$545,087, in 1912 and 1913 it averaged \$1,004,768, the total produce for the two years being \$2,009,537. Field beans are grown in every county of the province, but Kent is the banner county and was the first to start, that start being made in 1856. Prof. Zavitz furnishes particulars of the varieties, the complaints to which beans are subject, of their cultivation, and even of their cooking.

MANITOBA

Elementary Agriculture, School Gardening and Nature Section. This is a circular issued by the Department of Education of Manitoba. Rules for tree and shrub planting and advice on the selection of suitable trees for different soils are given. There are also tables of suggestions regarding time and manner of doing work and crops that can be grown in plots. The desirability of pupils keeping journals of their daily operations is impressed upon teachers.

The Teacher in Class-room, Garden and Playground is a bulletin circulated by the Manitoba Department of Education for the personal use of teachers. It contains Departmental notices and a list of agricultural questions for use in schools as well as percentage statements of the products of the world's principal countries.

The report of the Department of Education of Manitoba for the year ending June 30, 1914, forms a grey book of 187 pages, exclusive of a variety of full-page illustrations. A large increase in the number of school gardens and considerable advance in domestic science instruction are noted.

A feature of the report of the Manitoba Department of Education for the year ending 30th June, 1914, is the second annual report on School Gardening and Nature Study, by H. W. Watson, Director of Elementary Agricultural Education. Mr. Watson notes the improvement of the grounds at 34 schools, the planting of trees at 27 and gardening operations at 48. Some 40 school fairs were held last fall, and will be repeated this year. Grain for 4,415 experimental plots, potatoes for 1,054 experimental plots and about 60 lb. of Alfalfa seed and 12,000 windbreak seedlings were supplied free.

The Extension Service of the Manitoba Agricultural College has issued Circular No. 6, entitled "A Plea for Bird Houses." It gives cuts of a dozen easily-made bird houses.

The Department of Bacteriology of the Manitoba Agricultural College has published Circular No. 20 by C. H. Lee, Professor of Bacteriology, on "Alfalfa and Other Legumes Inoculation." It alludes to the importance of alfalfa being inoculated with nitrogen-fixing bacteria. There are two methods of inoculation. One is "seed inoculation with nitro-culture" and the other is known as "soil inoculation." Full directions are given in the circular for the application of both systems.

SASKATCHEWAN

Veterinary Summer School. This is a report of the proceedings of the First Summer School of the Saskatchewan Veterinary Association, held last year at Regina. The school, which was aided by a grant under the Agricultural Instruction Act, brought veterinary surgeons and breeders together from all parts of the province. Dr. J. A. Armstrong, president of the Saskatchewan Veterinary Association, presided and addresses of welcome were delivered by Lieutenant Governor Brown, Deputy Minister of Agriculture A. F. Mantle, and the Mayor of Regina. A variety of subjects was discussed relating, for instance, to the Intradermal Test for Tuberculosis, introduced by Dr. A. Knight of Victoria, B.C.; Biology, by R. A. McLoughry, Moosomin; Sclerostomes in Horses, by Dr. C. D. McGilvray, Winnipeg; Technique of Metacarpal Teuotomy, by Dr. John Scott, Peoria, Ill.; Pyaemic Arthritis, by Dr. H. Richards. Drs. Boucher, King, Mann and Hewitt dealt with specific cases and Dr. J. A. Armstrong (the President). Dr. L. L. Hewitt, Dr. Thomas Millar and Dr. John Scott led clinical discussions.

The second annual report of the Saskatchewan Hail Insurance Commission, just issued, shows satisfactory results. The two years' operations had produced a surplus of \$348,000, of which some \$280,000 was still owing by municipalities. There was, however, more than sufficient cash on hand to meet all liabilities. In 1914, the claims amounted to much less than in the previous year, although allowance had to be made for the drought in the southern part of the province. For one storm in 1914, which occurred on August 1st, the Commission paid out more than \$250,000.

Foot and Mouth Disease; its Nature, Cause and Treatment, compiled by J. C. Smith, B.S.A., Live Stock Commissioner, Saskatchewan. This is a bulletin issued by the provincial Department of Agriculture. It illustrates the terribly devastating character of the disease by directing attention to the fact that in the outbreak recently reported in Illinois up to March 3rd, 22,177 cattle, 30,842 hogs

and 1,022 sheep had to be slaughtered, involving a total loss of \$1,800,000, which was met half and half by the State and Federal governments. Between October, 1914, and January, 1915, the United States paid farmers three million dollars compensation in an attempt to eradicate the disease. The Bulletin warns farmers to report suspected cases on the instant to the Department at Regina.

Co-operative Organization Report, 1914. This is the first annual report of the Co-operative Organization Branch of the Saskatchewan Department of Agriculture. The work of the branch since its inception to the close of last year is gone over in full detail. A list of 113 co-operative societies in active working with the names of the secretaries and post office address of each is supplied. Reports received from all but eleven of these organizations give a membership of 2,850 shareholders. Advantages of the system are succinctly set forth with tables showing the exact working year by year in different directions.

Gardening for the Schools of Saskatchewan. This is a 42-page well-illustrated publication intended for the use of teachers in connection with lessons in nature study and agriculture, published and circulated by the Department of Education at Regina. In every branch of gardening, from the preparation of the soil to fruition, suggestions, advice and instruction are given, the whole forming a convenient, interesting and valuable handbook.

Vacant Lot Work in Regina. The monthly bulletin issued by the Department of Health, Regina, for March was devoted entirely to the cultivation of vacant lots, particulars of which have already appeared in THE GAZETTE. The notable features of the work is that in the short space of a year the gardens were made self-sustaining. Nearly five hundred vacant lot gardens are in bloom in Regina this year.

ALBERTA

United Farmers of Alberta. This is the Official Minutes of the Seventh Annual Convention, held at Edmonton, January 19, 20 and 21, 1915, with reports of the Board of Directors and Sub-Committees.

BRITISH COLUMBIA

Field Crop Competitions, Bulletin No. 61, Department of Agriculture, British Columbia, Live Stock Branch, prepared by J. C. Readey, Soil and Crop Instructor, being announcement of rules and regulations for 1915, and the awards for 1914. Bulletin No. 62 consists of the program for 1915, devoted entirely to potato growing by boys and girls, who must confine their operations to one-tenth of an acre.

Gardening on a City Lot, Circular Bulletin, No. 6, by W. H. Robertson, Assistant Horticulturist of the British Columbia Department of Agriculture. In this Bulletin, Mr. Robertson estimates that a family of five consume on an average thirty-five cents worth of vegetables a day, which could be produced in greater part on the spare land round the home at a modicum of that average. Because of the mild climate of the coast, he suggests that a good supply of fresh vegetables could be had every month in the year as follows:

December. }	} Kale, parsnips, leeks, lettuce,
January .. }	
February }	} parsley.
March....	Spinach, broccoli.
April	Radish, onions, rhubarb,
	broccol.
May.....	Asparagus, peas.
June.....	Early cabbage, carrots, beets.
July.....	Early potatoes, parsnips, beans.
August....	Tomatoes, cauliflower, onions,
	cucumber, summer squash.
September.	Cabbage, salsify, herbs.
October....	Celery, brussels sprouts, leeks,
	winter squash.
November	Fall lettuce, early spinach.

The bulletin furnishes information on preparing the soil, planting, quantity and quality of seed required, and cultivation. It also supplies a plan for a garden 40 feet by 40 feet, on which to grow both small fruit and vegetables.

The report of the Minister of Lands for British Columbia for the year ending December 31st, 1914, just issued, gives a great deal of information on matters affecting the land of the province, suitability for agriculture, dry-farming, character of the soil, etc.

The British Columbia Department of Agriculture has published a list of books recommended for the use of Women's Institutes. The list includes works on household economics, hygiene, nursing, eugenics, social and rural economy, gardening, horticulture, floriculture, and a variety of books suitable for children.

MISCELLANEOUS

Shire Stud Book (English). This is the 36th volume and contains the pedigrees of 5,325 animals, of which number 1,040 are stallions and 4,285 females. This is an increase of 32 stallions and 290 mares compared with the previous volume.

The Net Weight Law, as applied to the marking of butter and other fruit products, is the March Bulletin of the Maine, U.S., Department of Agriculture. Facts and figures are given in the same bulletin relating to "The Home Fruit Garden" and "Cow Testing Associations."

State-Aided Voc tional Agricultural Education, 1914. This is a 40-page reprint from the seventy-eight report of the Massachusetts Board of Education. It shows what was done and the progress that was made in the state last year in agricultural education. Very full statistical tables are given, showing the work of the pupils.

Canadian Thoroughbred Stud Book, Volume 1, 1914. This is the first volume of the registry of thoroughbred horses compiled and edited in the office of the Canadian National Live Stock Records and published by The Canadian Thoroughbred Horse Society. It contains the pedigrees of 691 stallions and 934 mares with index both of horses and owners, and a number of pedigrees in genealogical form of leading sires.

The Canadian Standard-bred Stud Book, Volume 1, compiled and edited in the office of the Canadian Live Stock Records and published by the Canadian Standard Bred Horse Society, 1914. This volume gives minutes of meetings, rules of entry, lists of officers and members, list of awards at the principal exhibitions and horse shows, and pedigrees of upwards of 1,600 trotters and pacers, with fittingly arranged indices.

Arbor and Bird Day Manual is an illustrated brochure, published by the Department of Free Schools for the Extension Department, College of Agriculture, West Virginia University, Morgantown, U.S., as a brief introduction says, "to invite pupils to the big out-of-doors, and to guide them in interesting and profitable study of the trees and the trees' companions—the birds."

The Use of Phylloxera Resistant Stock, Part 1, by M. Blunno; Farmers' Bulletin No. 80, New South Wales. This is a pamphlet of 88 pages dealing with relative matter in all countries. A sentence in the introduction reads: "When it was ascertained that this pest is of American origin, and lives parasitically on the wild vines of the forests of that continent, a genial logic opened the hearts of viticulturists to hope that the ravages of the tremendous scourge might be prevented in an indirect way." The importance of the subject is signified in the question: "How many really understand that the crusade against this scourge is directed to save a capital of one thousand million pounds sterling already invested in France and Italy respectively?"

Single-Stalk Cotton Culture, by O. F. Cook, Bionomist in Charge of the Bureau of Plant Pathology, Washington, D.C., deals with the growth of Egyptian, Durango and Acala cotton plants.

The Agricultural Gazette of New South Wales, February, 1915, recently to hand, invites editors to make quotations "with credit". It gives notice of a change in the end of the statistical year from December 31 to June 30 and deals with dairy-farming and irrigation, diseases of fruit, demonstration areas, animal importations and so on. It also gives interesting tables of results of herd testing for milk and butter with cash values.

Weekly Report of the Department of Trade and Commerce, for the week ending April 19th. It is stated in this report that the price for Canadian cheese continues to soar and that while United States and Australian cheese went to 86 s., Canadian went to 96 s. per box. A government order for 60,000 Canadian and New Zealand cheese at the end of February created a scarcity in the open market that has not been entirely repaired. The highest point touched by New Zealand cheese is 92 s. The report also gives a summary of trade for the twelve months ending with February, 1915, which shows that Canada exported during that time animal produce to the value of \$72,116,554, against \$52,927,254 in 1914, and agricultural products to the extent of \$128,820,451, against \$208,836,012 in 1914, \$142,538,390 in 1913, and \$103,129,619 in 1912. Included in the principal articles imported for consumption in Canada in the same period were: fruits, \$15,796,574 against \$16,968,620 for 1914; vegetables, \$3,165,651 against \$3,245,622 in 1914; wool and manufactures, \$24,937,260 against \$32,455,710 in 1914. Among the principal articles exported from Canada for the years ending February, 1915, and 1914 in value were:—

Report of Department of Agriculture, New South Wales, 1913-14. This report shows an increase in horses of 302,000 since 1890 and in cattle of 731,000, although the latter showed a decrease of 200,000 compared with 1912. Between 1890 and 1900 sheep decreased nearly sixteen million, but there was an increase in 1913 compared with 1912 of 800,000. The number in 1890 was 55,986,431 and in 1913, 39,850,223. Pigs showed a decline of 5,000 in 1913 compared with 1911. In 1913-14 there were under crops 4,571,901 acres compared with 852,704 acres in 1890-91. Wheat showed 3,205,397 acres in 1913-14 against 333,233 in 1890-91. Potatoes in the same period increased from 19,406 acres to 38,725. In spite of dry weather dairying operations in New South Wales in 1913 did not suffer greatly, the yield of both butter and cheese, indeed, showing an increase, but in 1914 the effect of drought was seriously felt.

Manual Training and Vocational Education, April, 1915, published by the Manual Art Press, Peoria, Ill. Contents: "The Protocol and Industrial Education," Julius M. Cohen; "The Analysis of An Occupation," M. E. Haggerty; "Two Units of Manual Training for High Schools," Ira S. Griffith; "Domestic Art in Time of War," Isabelle McGlauffin; "Lockers or Unfinished Work," A. F. Siepert.

Marketing Farm Products, by William W. Higgins, Associate Editor of the Rural New Yorker, constitutes Bulletin, No. 17, of the State of Vermont Department of Agriculture. While this bulletin was especially prepared for the purpose of enabling the producers of agricultural

	To Great Britain.	To United States.	Total. 1915	Total. 1914
ANIMALS:				
Cattle.....		\$9,018,728	\$9,136,567	\$7,786,025
Horses.....	\$1,133,670	490,880	1,645,673	732,775
Sheep.....		280,084	286,662	127,716
BREADSTUFFS, FRUITS, ETC.:				
Barley.....	2,576,350	205,579	3,328,807	7,105,133
Bran.....	58,113			
Cereal foods.....	1,454,226	29,922	1,995,205	2,092,411
Oats.....	3,769,762	1,783,124	8,149,141	13,485,583
Oatmeal.....	300,791	12,995	322,438	502,002
Wheat.....	63,412,071	4,243,808	71,333,536	125,832,506
Wheat flour.....	14,271,138	226,565	4,615,172	4,134,529
Apples.....	2,186,479	72,369	2,390,797	3,737,641
Hay.....	96,701	829,179	2,118,390	1,731,117
Potatoes.....	71,447	39,450	680,210	1,121,430
Butter.....	141,940	275,374	631,043	316,313
Cheese.....	18,899,314	114,841	19,237,267	19,181,618
Bacon and hams.....	10,538,903	1,980,836	12,545,534	4,063,911
Seeds.....	1,085,828	9,846,483	11,015,869	27,840,750

products in Vermont to become better acquainted with the demands of the market in the way of grading, packing, etc., it contains much information of value to the producers of Canada, treating as it does of general market conditions, of packages, of the marketing of fruit, vegetables, eggs and poultry and dairy products.

Journal of Agriculture, South Australia, February, 1915, is the official publication of the State Department of Agriculture. It is noteworthy that, unlike the policy of *THE GAZETTE*, newspapers are warned against using the articles, as they are copyrighted. The Journal, besides containing statistics and official reports makes a special appeal for fruit and vegetables for the soldiers and sailors. It also contains some particulars of 'A Model Live Stock Insurance Association', conducted on the co-operative principle.

The Fourth Annual Report of the School Garden Association of America. This is an illustrated pamphlet of 30 pages and sets forth in matter and illustrations the growth of the School Garden Movement in America. In the president's address the following cities are mentioned as doing especially strong work in School Gardening:

Los Angeles, Fresno, Sacramento, California; Portland, Oregon; Victoria, British Columbia; Weyburn, Saskatchewan; Truro, Nova Scotia; Guelph, Ontario; Lincoln, Nebraska; St. Paul, Minnesota; Kansas City, Missouri; Chicago, Illinois; Detroit, Grand Rapids, Saginaw, Michigan; East Chicago, Gary, Indiana; Cleveland, Dayton, Cincinnati, Ohio; Birmingham, Alabama; Athens, Georgia; Rock Hill, South Carolina; Hampton, Richmond, Virginia; Philadelphia, Pittsburg, Pennsylvania; Buffalo, Albany, Yonkers, New York City, New York; New Haven, Connecticut; Providence, Newport, Rhode Island; Boston, Worcester, Springfield, Brockton, Massachusetts; Louisville, Kentucky; Memphis, Tennessee.

The pamphlet also contains lists of bulletins on Home Canning, Domestic Science, Poultry, and Birds; the plan of a model school garden as prepared for the Panama Pacific Exposition, and the constitution of the School Garden Association, as adopted in San Francisco, 1911. The officers of the Association are: President, Van Eurie Kilpatrick, 124 West 30th St., New York; secretary, Earl L. Finney, St. Paul, Minn.

BOOK REVIEWS

Wealth from The Soil, by C. C. Bowsfield, author of "Making the Farm Pay"; Forbes & Company, Chicago, 5¼ x 7½ inches; 319 pages; price, \$1.00.

Although published in Chicago, Ill., there are chapters in this book calculated to make its perusal profitable in Canada. The author in his preface says that the work is intended "for all farmers, but more especially for those who hear the call of the soil and are trying to come abreast with modern conditions, make agriculture pay and gain the benefits of life in the country". The headings of a few of the chapters will best illustrate the contents and scope of the work. Starting with "City Men Turning to the Soil", which is not a list of names as might be supposed, but a general comment on what is going on, Mr. Bowsfield takes his readers through hints on "How to Engage in Farming", "Farm Planning and Management", "Social Aspect of Farm Life", "Keep the Young Folks Interested", "Promise of a Revolution in Marketing", "Parcel Post Advantages", "Importance of Farm Bookkeeping", "Progressive Dairy Management", and so on. Some sixty pages are devoted to "Successful Poultry Management". This section will probably most commend itself to such readers as the book may attract in this country.

The Principles of Fruit Growing, with Applications to Practice, by L. H. Bailey (The Rural Science Series), twentieth edition, completely revised; 432 pages; The Macmillan Company, London, New York and Toronto, 1915. A book that reaches a score of editions needs neither detailed description of its contents, nor testimony to its usefulness. The work contains the latest information on fruit-growing, including accounts of the most recent practices and discoveries. The different kinds of fruits, the heating of orchards to protect them from frost, the treatment of diseases and insects, the planning and laying out of orchards, and the use of fertilizers, are all dealt with. Fruit-growers cannot help but gain much valuable knowledge from this book. It is a veritable handbook and encyclopedia on all forms of fruit-growing, cultivation, keeping, packing and shipping.

A Credit Union Primer, by Arthur H. Ham and Leonard G. Robinson, published by Division of Remedial Loans, Russell Sage Foundation, New York City; 80 pages, paper cover, price 25 cents.

This is a veritable encyclopedic handbook of the Credit Union system. The Division of Remedial Loans of the Russell Sage Foundation has two main objects in view,

one being to terminate the existence of loan sharks and the other to enable industrious people who need to borrow money to be able to do so with the least possible expense. On page 481 of this number is given an outline of the work that the Caisse Populaire, founded by M. Alphonse Desjardins, C.B., is doing in the province of Quebec. In the state of Massachusetts something similar is being carried out under the sanction of an act providing for the organization of "Credit Unions." This primer has been prepared for the purpose of encouraging the formation of similar associations throughout America and of showing in detail the various steps, regulations and forms that are necessary to proper and sound business management. Messrs Ham and Robinson in the Introduction give a succinct account of credit union systems, the first of which originated in Germany as far back as 1849. As a

matter of fact there are two systems, one known as the Raiffeisen and the other as the Schulze-Delitzsch system. All co-operative credit, wherever found, the authors say, is patterned after one of these two systems. The number of co-operative credit associations or Credit Unions in existence in all parts of the world has been estimated to be more than 65,000, with a membership approximating 15,000,000 and an annual business amounting to \$7,000,000,000. By a series of questions and answers the objects of the credit union system, and the course necessary to pursue, in order to carry it into execution, are fully explained. In addition the bookkeeping required, shareholders' certificates, transfers, deposit and credit slips, interest tables, individual accounts and so on, are all given in form, along with the Credit Union law adopted by the state of New York last year.

NOTES

The Prince Edward Island Co-operative Egg and Poultry Association has opened an egg-candling and grading station in Charlottetown.

Organizations for co-operation among live-stock breeders in Saskatchewan have increased this year to the extent of 43, bringing the total number to 156.

The Government of British Columbia is circulating a million discs at the Panama Exposition referring prominently to the agricultural possibilities of the province.

At a meeting of the Haldimand Fruit and Vegetable Growers' Association the importance of bean culture was impressed upon members. Statistics were quoted showing that a profit of \$25 per acre was obtainable.

The annual report of the Superintendent of Education of Nova Scotia for the year ending 31st July, 1914, is a blue book of 260 pages. A feature of the report is the marked advance in rural science teaching that it indicates.

Professor H. R. Smith, of Animal Husbandry in the Minnesota College of Agriculture, has resigned to take a position with the First National Bank of St. Paul as an "apostle of diversified farming and live stock", under the direct auspices of the bank.

Stock yards that cover 160 acres are in course of construction at Edmonton, Alta.

The Canadian Pony Society will offer medals as usual at Toronto, Edmonton, London, Regina and Quebec exhibitions, and at the Guelph winter fair, and will subscribe \$10 to the funds of the Toronto open air horse show.

During March five new farmers' institutes were organized in British Columbia. As six were also organized in January and February, the total number of institutes has been increased this year from 111 to 122. Women's institutes have also been increased this year from 48 to 51.

An increase of 1,766,108 acres ploughed last fall is recorded on the Canadian Northern lines in the prairie provinces, the total being 6,181,376 acres. At 21.38 bushels to the acre, the average for 1914, in wheat, oats and barley, this would give 132,157,818.88 bushels.

Miss Hazel E. Winter, Supervisor of Women's Institutes in New Brunswick, reports that the Women's Institutes of the province have contributed nearly five thousand dollars to the different war relief funds, and that a donation of two thousand pairs of socks heads a long list of articles supplied to the soldiers, gives an encouraging account of the household science work and announces a series of short courses.

Vancouver, B.C., imported 4,332,000 pounds of onions in 1914 from Australia, Japan and the United States.

The Board of Agriculture for Waterloo County, Ontario, is offering a diploma for the rural school in each of the five townships, making the best showing in general equipment and surroundings. The inspectors will do the judging.

The Saskatchewan Department of Agriculture has appointed F. M. Logan, B.S.A., Assistant Dairy Commissioner, and P. E. Reid, Dairy Inspector. Both are graduates of the Ontario Agricultural College. Mr. Logan was formerly Creamery Inspector for Nova Scotia.

The Alberta Gazette, under date of April 15, 1915, announces the following appointments to the Board of Agricultural Education: Daniel Webster Warner, Clover Bar; Arthur Edward Shuttleworth, Blackie; Lew Hutchinson, Duhamel, and Charles Sherwood Noble, Nobleford.

Eighty-nine students graduated on March 26 from the Alberta schools of agriculture at Olds, Vermilion and Claresholm. The schools have only been in operation two years and these were the first batch of students to graduate. The student roll of the three schools shows upwards of 500 names.

Hon. J. A. Murray, Minister of Agriculture for New Brunswick, in order to enable farmers to get better prices for their wool than in the past, has established graded wool centres. Mr. Murray also secured 5,000 bushels of good seed wheat for distribution. Free samples of fodder corn, alfalfa and Swede turnip seed have also been distributed.

The outlook for live stock in British Columbia, according to Live Stock Commissioner W. T. McDonald, of British Columbia, is exceptionally satisfactory. There is much activity both in the dairy and meat business, particularly along the line of the Grand Trunk Pacific, and in the Nechaco and Bulkley valleys. Several large dairies have been opened in the fruit-growing section of Okanagan. The number of sheep is increasing. The milk tests being carried on by the Department of agriculture are proving most beneficial.

The series of one hundred dairy demonstration meetings promoted by the Saskatchewan Department of Agriculture along the lines of the Canadian Pacific and Canadian Northern railways attracted a total of 6,544 people. It is thought that the meetings will result in greatly enhancing the reputation of Saskatchewan for dairy products.

The Canadian Shire Horse Association will give \$35 in prizes at the Canadian National Exhibition, Toronto: \$20 at the London, Ottawa, Calgary, Edmonton, Regina and Brandon exhibitions and \$50 to the Guelph winter fair. The English Shire Horse Society will give two gold cups and gold medals for Shires at Toronto, and other exhibitions as usual this year.

In the article on "Cultivation of Vacant Lots" in Philadelphia in the April number of THE AGRICULTURAL GAZETTE, page 387, it is stated that the cost to the Vacant Lots Cultivation Association, the organization that is responsible for the work, is \$50 per garden for ploughing, fertilizer, seed, etc. This is a typographical error. The cost is only five dollars.

Dairy Commissioner W. A. Wilson of Saskatchewan, in a Press Bulletin, chronicles the fact that a series of one hundred dairy meetings has just closed, 53 being held along the line of the Canadian Pacific Railway and 43 along the Canadian Northern. The average attendance at the former was 52, and at the latter 80. Each company supplied cars in which lectures and demonstrations by lantern slides were given.

A prominent bank official of western Canada, who is taking a keen interest in the utilization of vacant lots for the growing of garden crops, says:

"It seems to me that the daylight saving scheme would be one of the greatest factors in helping on the kitchen garden movement. It would give everyone from Halifax to Vancouver an hour's more time to work in the garden in daylight than they would otherwise have and it would be a great thing for the health of the nation to have an extra hour for outdoor recreation, and last, but by no means least, there would be a wonderful saving of light, electric, gas and oil. The one hour extra daylight would mean that by the time darkness came it would be pretty nearly bedtime, going by ordinary rules."

The Farmers and Women's Institutes of British Columbia, through His Royal Highness the Governor-General, have received from the Imperial Secretary of State an acknowledgement of their contribution to the British Patriotic Fund, stating that of the £891.1.5 forwarded, £500 has been sent to the Belgian Minister for the relief of the Belgians and the balance paid to the Prince of Wales' National Relief Fund.

The Oka Agricultural Institute announces the return of Mr. H. Nagant, Agricultural and Forestry engineer, professor of mineralogy, rural engineering and agricultural chemistry, after a trying experience in Europe. Mr. Nagant visited his home at Louvain, Belgium, last summer, for his vacation. He had planned to return to his work for the opening of the college year in September, but was taken prisoner as a civilian at Munster in September, and did not secure his liberty until the end of March.

The British Columbia Department of Agriculture is conducting, through the Farmers' Institutes of the province, a competition among the boys and girls in the production of potatoes. The boys and girls competing undertake to grow a crop of a certain minimum size, to keep accurate records of the expense and labour put upon the plot, to estimate the value of the crop at \$20 per ton when harvested and \$5 a ton for culled potatoes, then to give a statement of the total value of crop, cost of production, net profit or loss; net cost of producing a ton of potatoes and the net profit per acre.

In the weekly report for April 12 of the Department of Trade and Commerce the report of the Trade Commissioner for Argentina is given. From this it appears that the Argentines import from three to five million kilos of cheese annually, Italy supplying by far the larger portion. A good deal of cheddar cheese is consumed, the bulk of which, although from the United Kingdom, is believed to be largely of Canadian manufacture. The Commissioner remarks that there is no reason why this trade should not be carried on direct. He also says that the 56-lb. cheese as made in Canada would be acceptable to the Argentine market. Speaking of hams and the fact that Great Britain is the principal exporter next to the United States, the Commissioner says the British excel in their methods of packing, where Canada is deficient. A trial shipment from this country was made some time ago, but the hams being packed in sawdust instead of rice or oat husks they proved unsatisfactory.

The legislature of Idaho has passed, and the governor has signed, a bill calling for the creation of the office of director of farm markets. The director is to be appointed by the governor, and it is his duty to promote economical and efficient distribution of farm commodities. He is to maintain a market news service, including information relative to crops, freight rates, commission rates, and any matter considered of service to the producer or the consumer. He is to investigate the methods of commission merchants and others who receive, solicit, or in any way handle the produce of farms. He is authorized to take legal action if necessary.

British returns for February 1915, compared with the same month last year show the following in agricultural products:

IMPORTS FROM CANADA

Feb., 1915 Feb. 1914.

Wheat.....	£580,907	£569,860
Wheatmeal and flour..	174,482	137,375
Oats.....	33,983	14,556
Barley.....	6,559	31,126
Bacon.....	304,710	73,775
Hams.....	64,098	12,066
Cheese.....	90,506	57,981

Wool in value to the amount of £21,105 was exported to Canada against £7,505 in February of 1914.

The British Columbia Department of Education has decided to include agriculture as an optional subject in the high schools, thereby making it possible for boys to pursue this branch of study after leaving the public school. Competent teachers, with special qualifications as instructors in the various branches of agriculture, will be appointed in these high schools, which will be chosen from those schools situated in the best agricultural districts. The agricultural specialists, in addition to teaching agriculture proper, will also assist in teaching some of the regular science work of the high school, especially the biological part. They will also spend a part of each week supervising the work in elementary agriculture and school gardening in the public schools of the districts or municipalities in which the high schools are situated. Extension classes in agriculture will be opened in these particular high schools for boys and young men who are not regular students in the high school and who can give only a portion of their time to such studies. These classes will be held either during the day or in the evening, as may be found convenient or desirable.

The grain situation as it is understood in the mother country is well expressed in a recent number of the *Scottish Farmer* in the following paragraph:—"Grain supplies for the year 1915-16 are causing considerable anxiety in high quarters. It appears certain now that this country will not feel the pinch of excessive prices—which means scarcity—this year, but it is not all certain that a like comfortable condition of things will prevail should the war continue during the whole of this summer and autumn. It is now dawning on some minds that the Allies will require to feed Belgium for a year, and they will also require to feed Serbia, should there be any of that gallant nation left to be fed. The pestilence is wasting that land to the full as badly as war, and the Allies who are more favourably situated have a huge task in hand. Grain growing will not be the staple industry of the Hungarian plains this year, and the Dardanelles are a long way from being pierced. The powers that are safeguarding the food supplies of India, and the release of the Black Sea wheat flotilla is not yet in sight. The British navy has done wonders, but the wisest men are those who recognize that 'Waste not, want not,' should be our motto as well as that of Great Britain's foe."

Congress appropriated a total of \$27,551,782 for the promotion of agriculture during the next fiscal year. In addition to the regular appropriation of the federal department of agriculture this includes the following:

Smith-Lever fund, \$1,080,000; printing fund, \$500,000; meat inspection fund, \$3,000,000. The appropriation act for the fiscal year beginning July 1, 1915, sanctions the plan of re-organizing the department which was recommended by Secretary Houston in his recent annual report. For the first time, definite provision is made for funds to assist in the eradication of contagious diseases such as foot-and-mouth disease, rinderpest, contagious pleuro-pneumonia and other such diseases which are likely to attack domestic animals. The sum of 2½ millions of dollars is provided to meet any emergency in combating epidemics. The department will not have to wait for an act of Congress to provide the needed funds, as was

the case in the recent outbreak of foot-and-mouth disease. In the future the Secretary of Agriculture may use as much of this fund as the occasion may demand. "*The Ohio Farmer*," Cleveland, Ohio, April 24, 1915.

A colonial honey competition is to be held at the Royal Agricultural Hall, London, Eng., in connection with the annual grocers' exhibition, to take place from September 18th to 24th this year. There are to be two classes, one of twelve 1-pound jars of extracted granulated honey and the other of beeswax in three 1-pound cakes, judged for quality of wax only. Gold and silver medals and diplomas are to be given as prizes. Any information desired can be had on application to the Department of Trade and Commerce, Ottawa, reference to be made to file No. A. 1478. Entries should be in by September 11th, 1915, and should be addressed to the High Commissioner for Canada, London, Eng.

The wheat prospects for 1916 are being discussed under a variety of aspects in different parts of the United Kingdom and her oversea dominions and dependencies. It is anticipated that there will be an increase in growth in this country of 5 per cent, and in Canada of 30 per cent, over that of 1915. The reports from India regarding the crop now being harvested are striking. There is an area under the crop of 32,148,000 acres, with an estimated yield of 10,293,000 tons. The best recorded yield in the past was that of 1911, namely, 10,061,000 tons. The area last year was 27,697,000 acres, and the yield 8,427,000 tons. There is thus a very substantial increase. The arrangements made to prevent such an export of wheat from India as would have left the population of that great dependency in a state approximating famine in a year of plenty have been published. They seem to be quite sane, and calculated to prevent such a disaster to India, and at the same time allow for the export of at least 2,000,000 tons of surplus wheat to the mother country at reasonable prices.—"*Scottish Farmer*," Glasgow, April 24th, 1915.

According to Extension Bulletin No. 31 of the Iowa State College of Agriculture, entitled "Unlawful and other Weeds of Iowa," the unlawful weeds of that state are: quack grass, Canada thistle, cocklebur, wild mustard, curled dock, smooth dock, buckhorn, wild parsnip, horse nettle, velvet weed, burdock, Russian thistle, shoo-fly or bladder ketmia and wild carrot. All these weeds, the majority of which are not unknown in Canada, are, according to the Iowa Weed Laws, to be destroyed between 15th July and 15th August. The bulletin consists of 38 pages and is well printed and illustrated.

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